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THE EFFECTS OF GUIDED SELF-ANALYSIS ON THE VERBAL TEACHING BEHAVIORS AND ATTITUDES OF STUDENT TEACHERS

by

© M. ROY BAILEY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "The Effects of Guided Self-Analysis on the Verbal Teaching Behaviors and Attitudes of Student Teachers" submitted by M. Roy Bailey in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Date October 3, 1973

ABSTRACT

This study was designed to determine whether a program of Guided Self-Analysis (GSA) would effect significant changes in the verbal behaviors of student teachers. Secondly, it examined the extent of attitude change in student teachers over the treatment period, as measured by the Minnesota Teacher Attitude Inventory (MTAI). Finally, the study attempted to examine the relationships between initial scores on the MTAI, total or dimensional, and the amount of change in verbal behavior after the GSA program, in order to determine, if possible, the predictive validity of the Minnesota Teacher Attitude Inventory (MTAI).

The research was conducted during a three-month student teaching practicum during January, February and March, 1971. Twenty student teachers, registered in the Professional Diploma, After Degree program in Elementary Education at the University of Alberta, were involved in the study. They were randomly assigned to an experimental school (12 students) and to a control school (8 students) for the duration of the project. The sample was drawn from 36 volunteers out of a total of 88 students registered in the PD/AD program.

Each subject completed the Minnesota Teacher Attitude Inventory (MTAI) and was videotaped at the beginning and at the end of the three-month project.

A number of other means was employed to gather additional information on the two groups of student teachers. Both groups completed the Personal Data Questionnaire (PDQ) at the outset - an instrument

designed to obtain information on the individual characteristics of the subjects. At the conclusion of the project, each subject turned in a Log Book in which personal reactions to the project had been recorded. Each subject also completed a half-hour taped interview concerning his total involvement in the project. Both groups completed the General Questionnaire, designed to solicit their opinions on a variety of topics, such as, student teaching, cooperating teachers and schools, faculty consultants, and the PD/AD program. The experimental subjects completed the GSA Questionnaire, developed to collect information on their reactions to the GSA program in particular. The GSA work-sheets used by these individuals were also collected.

The study revealed that experimental subjects trained in GSA modified certain verbal behaviors significantly. They decreased their use of Information Questions and increased their use of Leading and Probing Questions to a significant degree. They decreased their use of Closure Responses significantly. A significant difference between the two groups was revealed on the three indices used in the program - Question Index, Response Index, and General Index of Interaction.

Significant differences between the two groups were revealed for one of the four attitude variables used in the study. Significance levels were not attained for the major attitude variable - total score on the MTAI.

No significant relationships were reported between initial attitude scores on the MTAI and verbal behavior change scores specified in GSA schedules, A and B.

In general, it could be concluded that training in GSA was effective in helping student teachers to modify their verbal behavior in specified ways. Such programs do not appear to have too much affect on the attitudes of those using them when the MTAI is the criterion measure. Furthermore, the MTAI did not appear to be a worthwhile predictor of later success in using GSA schedules.

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CHAPTER I

INTRODUCTION

The major goal of any teacher education program is to provide the schools with an adequate supply of individuals trained to carry out the tasks of education effectively. Unfortunately, until the last ten or fifteen years, little emphasis has been placed upon the basic component of the educative process - teacher-pupil interaction. Teacher effectiveness studies have been generally concerned, at one time or another, with prediction and product considerations. They have seldom focussed on those process skills related to verbal interaction between the teacher and the learner.

Teacher education programs have prepared teachers for that vital confrontation of minds largely by structuring a variety of in-school experiences, variously called 'practice teaching', 'student teaching', or 'internship'. Considerable controversy has surrounded the proportion of the student teacher's time that should be devoted to clinical experiences within the schools. Internship programs, for example, in some universities may recommend that students spend more time in the schools than on campus. As early as 1909, Brown University had initiated an internship program. Gardner (1969) reported that internship programs became quite popular during the Depression when school trustees and other government officials saw interns as sources of cheap labor. Too often, internship programs became merely devices to shorten teacher training programs with little preparation for the interns, followed by virtually no contact between the university and the students in the field.

In recent years, renewed interest in the concept of training by internship has been characterized by careful planning and implementation. The internship component forms an integral part of the overall program (Corman, 1964; Allen, 1966; Horowitz, 1967).

However carefully these 'student teaching' experiences have been organized, little emphasis has been placed upon the 'content' of such experiences. Students are admonished to "get out there and teach". Considerable information is provided to them in the form of normative models of behavior and prototypes of the ideal teacher, but virtually none of their training focuses on the basic unit of communication between teacher and pupil. That very verbal exchange between two people, so exemplified in the Dialogues of Plato, is virtually ignored in most teacher training programs.

Flanders, Bellack, and Taba have all underlined the importance of research in the area of teacher-pupil interaction so that new modes and strategies for classifying, measuring and ultimately, changing specific verbal behaviors of individuals are possible (Amidon and Simon, 1965).

An individual, provided with a technique for coding his own behavior, has a self-analysis strategy which would permit him to collect and analyze and then internalize feedback information. He could then formulate and initiate more appropriate sets of verbal behaviors.

Amidon and Simon (1965), in a review of the research in the field of interaction analysis, provide evidence that a teacher can modify his verbal behaviors to some extent if he is provided with a means of objectively monitoring them and if he is given some normative framework against which these behaviors can be examined. Research has shown that these behavior changes can be so structured as to enhance pupil learning (Taba, 1964; Furst, 1967). Wilk and Edson (1963) established tenuous links between interaction analysis training procedures and certain personality variables. Thus, it may be important to investigate this relationship further with a view to determining which kinds of individuals benefit most from specific training in strategies designed to promote changes in an individual's system of expressive behavior.

Guided Self-Analysis

> Oh wad some power the giftie gie us
> To see ourselves as ithers see us!
> It wad frae mony a blunder free us
> And foolish notion.
>
> Robert Burns

A technique recently developed (Parsons and Smith, 1968) provides the teacher with "a means of extending both the cognitive structure of the teaching/learning process and the repertoire of teaching behaviors (Birch, 1969, p. 2)." The technique, labelled Guided Self-Analysis (GSA), provides a framework in which self-analysis of verbal behaviors as recorded on videotape can be effected by a teacher-participant. The analysis generates feedback information related to the teacher's verbal behavior and its effect on the pupils.

A series of four schedules, each focussing on a different set of behaviors, can be used to guide the teacher's self-analysis experience. The program is presently being extended by the authors. Each schedule highlights a manageable number of verbal behaviors, never more than five, so that the teacher can more easily code and subsequently modify each behavior at the appropriate time. The schedules are designed to assist the teacher in developing a cumulative profile of his verbal behavior. Self-confrontation via videotape can be rather easily accomplished in the privacy of the participant's own classroom, thereby removing the anxiety-provoking threat of third party evaluation.

Each schedule provides considerable interpretive material which includes a variety of verbal behavior patterns based upon the particular behaviors presented in that schedule. After coding his own behavior, the teacher is directed to examine these typical configurations. He then is expected to assess his own behaviors in writing and to provide some concrete examples of how he intends to modify these behaviors which he has perceived as inappropriate. Further videotapings enable him to re-code his performance so that he can measure the extent and direction of changes in his behavior.

Purpose of the Study

This study had three major purposes. First it attempted to determine whether the GSA technique would effect significant changes in the verbal behaviors of student teachers. Secondly, the study examined the extent of change in the attitudes, as measured by the Minnesota Teacher Attitude Inventory (MTAI), of those student teachers participating in the project. Thirdly, the relationship between certain attitudinal patterns of subjects and their verbal behavior changes was examined with a view to the utilization of all or part of the MTAI to predict which individuals would tend to benefit from a GSA training program to the greatest extent.

Need for the Study

Teacher behavior is such an important factor in what pupils learn that more and more emphasis is being placed upon classroom research. The classroom has become the educational laboratory of today (Medley and Mitzel, 1963; Jackson, 1968; Adams and Biddle, 1970).

Guided Self-Analysis, as developed by Parsons, is a strategy designed for use by the teacher in the classroom. More research into its effectiveness as a means of modifying verbal behavior in order to enhance pupil learning is essential. Furthermore, it is not sufficient to determine whether the technique is efficient, but to determine for whom it is most efficient. We should attempt to identify individuals for whom GSA is not a worthwhile strategy. Strategies, such as GSA, involve considerable financial outlays at the outset and, therefore, great care should be taken to offer such program components only to those who could benefit from them.

The purpose of this study, already stated, is to determine whether GSA is an effective strategy in behavior change and also to develop a predictor based upon attitude factors which could serve to indicate those individuals who would benefit most from training programs in GSA techniques.

Limitations

The present study was limited to an investigation of verbal behaviors and teacher attitudes of elementary student teachers registered in a one-year program for degree holders at the University of Alberta.

Furthermore, the sample was restricted to those from the program who volunteered. Random assignment to experimental and control groups then took place.

The complexity of organization required for such a project made it almost mandatory to limit severely the size of the sample.

The short period of school time allotted to the project - about 25 teaching days - imposed further constraints on the full implementation of the experimental treatment.

Definitions

The following terms are used extensively throughout this dissertation and are defined as follows:

1. Guided Self-Analysis (GSA) is a system, developed by Parsons (1968), in which the teacher is trained to code, analyze, and modify certain verbal teaching behaviors. A set of guides (Schedules) enables the teacher to do

his own analysis and interpretation of a videotaped sequence of teaching behaviors.

2. The present study utilized the first two schedules (A and B) from the Teaching for Inquiry Program. Schedule A is entitled Questioning Strategies; Schedule B is entitled Response Patterns. A detailed explanation of the specific verbal behaviors included in each schedule is included in Appendix A.
3. Coding is the activity in which the teacher engages while viewing a videotape of himself. He categorizes his own talk according to the criteria laid down in each of the schedules.
4. Generally, attitudes are defined as relatively enduring organizations of beliefs around an object or situation predisposing one to respond in some preferential manner (Rokeach, 1968, p. 449). In the present study attitudes towards children and teaching as measured by the Minnesota Teacher Attitude Inventory (MTAI) are the major focus of attention.
5. Verbal teaching behaviors refer to a number of dependent variables which are included in the Guided Self-Analysis Schedules A and B. Questions, for example, are categorized as Rhetorical, Information, Leading, and Probing in Schedule A. Other GSA variables are described in Appendix A.

CHAPTER II

BACKGROUND OF THE STUDY

This chapter is concerned with a consideration of the following areas: (1) an examination of the principles upon which the Guided Self-Analysis technique is based; (2) a review of a number of studies related to verbal behavior change with special emphasis on the Birch (1969) study; (3) a short resume of the evolution of the use of videotape as a feedback mechanism in a variety of fields; (4) a review of the research in which the Minnesota Teacher Attitude Inventory has been used to measure attitude change in both pre-service and in-service teachers exposed to various treatment programs; (5) an examination of certain selected studies in which the MTAI has been used as a predictive instrument. The rationale for the present study is founded upon certain theoretical principles and empirical findings from these five sources.

Cognitive Map

Tolman (1948), a field theorist, contended that human learning was considerably more than the strengthening or weakening of stimulus-response connections. He held that human learning could be likened to the establishment of cognitive maps in the brain. The process begins with the individual being bombarded with stimuli and the nervous system responding by filtering out certain stimuli and accepting others. The incoming impulses are then worked over in a kind of 'central control room' and structured into a tentative, cognitive map of the environment. Maps of this sort, then, are responsible for determining and initiating human response. He further theorized that some maps were wider and more comprehensive than others and that the more comprehensive the map, the more it permits variations in response.

The structure of these maps depends to a great extent on both personal and environmental factors. Personal factors, or internal stimuli, initiate cognitive changes when there is a blockage of want satisfactions. Whether the resultant changes are adaptive or not depends upon the strength of the want and the accuracy with which the blockage to the goal is perceived. Information, or external stimuli, is another major factor in initiating cognitive change. However, since the individual is selective in attending to new information, mere exposure to stimuli is not a guarantee of cognitive change. The individual's feelings and emotions and attitudes may act to prevent any substantial change. The degree and manner of change in the cognitive systems is also due to the characteristics of systems already existing in the mind. Broader or more complex pre-existing maps are far more immune to change than narrow or simplistic systems.

GSA, as a technique aimed at effecting changes in an individual's expressive behavior, focuses on providing information which the individual utilizes in order to re-integrate certain cognitive structures which govern particular expressive verbal behaviors.

Cognitive Dissonance

Regardless of the degree or manner of cognitive change, the direction of change seems to be such as to approach a more consonant structure. Social psychologists (Newcomb, 1959; Festinger, 1957) have developed theoretical models which have as their common goal an explanation of the mind's striving "for internal consistency within the cognitive map (Birch, 1969, p. 24)." To introduce information (external stimuli) into the cognitive structure which is discrepant with cognitions already integrated into the existing map, tends to produce a state of disequilibrium or dissonance. The individual will initiate a series of attempts to remove dissonance by somehow reconciling the new information to the existing map. These attempts may, of course, result in distortion of the new information. It cannot be assumed that information will ultimately change expressive behavior. In a study designed to examine the effects of evaluative feedback from pupils to their teachers, Gage (1963, p. 174) presented a series of eight alternative actions which could be taken by teachers in the face of such feedback. The alternatives were taken from Newcomb (1959) and adapted as follows:

1. Influencing pupils toward his own orientation to the behaviors; i.e., clarifying the rationale for his behavior to the students so that they can accept his orientation as their own;

2. Changing his own orientation toward the behaviors; i.e., adopting the same attitude toward the behaviors as he perceives the pupils to have;
3. Cognitively distorting the pupils' orientation; i.e., reinterpreting his perception of his pupils' orientation so that it becomes more like his own;
4. Modifying his attraction towards the pupils; i.e., liking them less;
5. Modifying his judgment of his own attractiveness to the pupils; i.e., feeling that the pupils like him less;
6. Modifying his own evaluation of himself; i.e., liking himself less;
7. Modifying his judgment of the pupils' evaluation of themselves; i.e., perceiving the pupils to like themselves less;
8. Tolerating the assymetry without change.

Alternatives (1) and (2) or some combination of these two responses appear to be most worthwhile in terms of their positive and desirable attributes with reference to modification of behavior. That any of the other alternatives could be activated underlines the extreme importance of carefully controlling the content of the information presented to the teacher, its manner of presentation and also the context in which the experience occurs. In his study, teachers were found to have modified their behaviors to conform more closely to their perceptions of what the ideal teacher was conceived to be by their pupils.

The degree of dissonance created in a given situation is directly related to the individual's perception of the importance of the dissonant cognitions. Information, in the form of feedback, which indicates to a teacher that he is consistently performing in ways destined to have detrimental effects on children would create much more disequilibrium than other, more peripheral bits of information. Furthermore, if these perceptions case some doubt upon the accuracy of that teacher's perceived self-image, extreme discomfort can be created. It is of paramount importance that some positive intervention take place at that crucial point or the individual's behavior may tend to deteriorate further. For example, one of Gage's alternatives described the teacher liking herself less. It becomes imperative, then, that any procedure which has as its goal the creation of disequilibrium must include positive and readily accessible behaviors which the subject can resort to so that equilibrium is restored with as little delay as possible.

Self-Image and Identity Theory

The concept of cognitive change is closely related to what we have already referred to as the individual's self-image. Wallace (1967) postulated that one's self-image or identify may be seen as _real_, _ideal_, or _feared_. _Real_ identity is the state in which an individual truly believes himself to be, e.g., "This is what I am." _Ideal_ identity is the most desirable state that the individual can conceptualize, e.g., "This is what I'd like to be." *Feared* identity is the least desirable state that the individual can conceptualize, e.g., "This is what I'd least like to be." Just as an individual will strive to attain a balanced state in his cognitive structures, he will also strive to narrow the gap between his real and ideal identities and to widen the discrepancy between his real and feared identity. His perceptual 'filter' or 'net' will seek information that will be consistent with this dual goal. Any technique designed to change established behavior must be carried out in a carefully structured and supportive environment to avoid creating adverse discrepancies among identity aspects.

Guided Self-Analysis

Guided Self-Analysis has been described (Birch, 1969) as an intervention technique aimed at effecting changes in a teacher's cognitive map as well as in his system of expressive behavior. By means of videotape, vivid and indisputable feedback information is made available to the subject who is provided with the necessary techniques to analyze, characterize and interpret his own verbal behaviors. Self-analysis is carried out in a clearly delineated context of the professional image. The subject observes discrepancies between his actual behaviors and those characterized as "ideal". Ideal behavior in the context of the Guided Self-Analysis program (Schedules A and B) is characterized by a move away from question-response sequences described as information-seeking and information-getting, towards more complex and extended patterns involving an increase in leading and probing questions and sustaining and extending responses. As his awareness of these gaps is heightened, dissonance is engendered both within his cognitive map and his system of expressive behavior. Moreover, the disequilibrium affects the balance between these two systems. The tension thus created leads the subject to carry out certain modifications in his behavior that will tend to narrow the gap between his observed behavior and what he has been trained to accept as ideal behavior.

Repeated exposures to this type of structured self-confrontation will, it is hoped, reinforce the desired behaviors and extinguish those that have been perceived as undesirable. Profiles of behavior structured during the first self-analysis serve as personalized reference points against which subsequent behavioral constellations can be compared and be observed as narrowing the discrepancies between real and ideal behaviors. Thus, the cognitive map undergoes a series of reintegrations accompanied by a series of concomitant refinements in the system of expressive behaviors. The entire process becomes self-reinforcing since each reintegration of the cognitive map produces a different perceptual set within the subject making him increasingly more sensitive in his verbal exchanges with pupils. The positive reactions of pupils will reinforce the teacher's newly acquired behavior, tend to enhance his perceptions and thus lead to further modifications in the cognitive map.

Attitudes and Verbal Behavior

GSA aims at creating dissonance in an individual's cognitive map via self-confrontation and self-coding. Information is then provided which the individual can process in order to reintegrate his cognitive structures and, consequently, to modify certain expressive behaviors in specific directions.

Attitudes, according to Schroder, Driver and Steufert (1967), are structural variables which influence the way in which an individual combines both external and internal information in order to effect adaptations in his overt behavior. Attitudes, then, act somewhat like filters. Some are integratively complex and permit the integration of more complex information while others are described as concrete, based on a rather narrow range of information, and are more stable.

Attitudes appear then to be related to an individual's flexibility in reacting to dissonant information provided by means of Guided Self-Analysis. The purpose of administering an attitude instrument such as the MTAI as part of this study is to enable the investigator to explore whether relationships between attitudes and verbal behaviors exist.

Considerable research in the area has already been done and is referred to later in this study. Special reference is made to the use of attitudinal patterns as predictors of corresponding behavioral patterns.

Theory of Teaching and Guided Self-Analysis

GSA programs are based upon a theory of teaching in which the linguistic behavior of the teacher is an integral component. Clarke (1969, p. 6) defined teaching as "activities which are designed and performed to produce change in student behavior. Such activities can be diverse, e.g., lecture, question-answer, discussion, discovery or enquiry, individual assignment." Furthermore, the linguistic behavior of the teacher is aimed at developing and raising the quality of pupil thinking. A teacher, aware of, and ih command of, the language he uses when interacting with pupils is exercising a teaching function of the highest order. Gagne (1965, p. 28) stated that ". . . properly led, such discussion not only stimulates the production of new extensions of knowledge by students but also provides a convenient means of critical evaluation and discrimination of these ideas."

Smith (1961) included the teacher's linguistic behavior among the independent variables of his pedagogical model. "The independent variables consist of linguistic, performative, and expressive behaviors. These behaviors are essential elements of the concept of teaching . . . (p. 94)."

Guided Self-Analysis is a 'process framework' based upon a concept of teaching in which a teacher's verbal behavior plays a major role. The system provides a method of collecting, classifying, and analyzing specific verbal behaviors with a view to initiating modifications that will raise the levels of thinking of the pupils involved. It is, for example, typically noted that student teachers tend to use a high proportion of Information Questions. The self-coding procedures built into the GSA program illustrate to the student teacher graphically the extent to which his verbal behavior may be inappropriate to the situation. Models of normative behavior are supplied in the schedules and these are used to form the basis of a re-evaluation of past performance and to provide the framework for planning a new lesson in which the objective related to raising the levels of pupil thinking may be more readily realized.

The schedules (A and B) used in the present study are primarily concerned with question/response patterns used by teachers within the context of "inquiry oriented" lessons. Other schedules have been developed for the purpose of categorizing and analyzing other teacher and pupil linguistic behaviors.

Interaction Analysis Training

Of all the systems designed as research tools in categorizing and classifying the verbal interactions between teachers and pupils, the system developed by Flanders has been most widely used (Lohman, 1966, p. 19). The Flanders' system has been used extensively with both in-service and pre-service teachers not only as a research tool but as an intervention designed to effect changes in the verbal behaviors of certain individuals.

The Flanders' system of Interaction Analysis employs ten categories for classifying the types of verbal interaction that take place between teacher and students in the classroom. These categories are divided into three broad areas - Teacher Talk, Student Talk, and Silence or Confusion.

All verbal interaction can be placed into one of the ten Flanders' categories and the observer records the verbal behavior once every three seconds, or about twenty times per minute. At the end of a twenty minute period of observation the four hundred tallies are summarized by entering the totals in a ten-row by ten-row matrix.

The matrix serves as a picture of the pupil-teacher interactions that have taken place during the observation period. Many complex interpretations can be made with each matrix which can be fed back to the teacher so that he, in turn, can then attempt to modify his verbal behavior, thereby moving, for example, from a direct style to a more indirect style.

Guided Self-Analysis (Schedules A and B) is concerned with classifying the cognitive aspects of teacher-talk. Flanders classifies all questions by the teacher as 4's and all pupil responses as 8's, regardless of their cognitive content. GSA is concerned with teacher questions and responses as tools designed to raise the level of pupil thinking.

Questions are categorized as 'Information', 'Leading' and 'Probing', while teacher responses are described as 'Closure', 'Sustaining' and 'Extending'. A high proportion of information questions would contribute towards characterizing a teacher as being 'indirect' according to Flanders, a generally desirable situation. But the same high proportion of information questions in a GSA profile might be interpreted as the teacher's lack of ability to move the pupils to higher cognitive levels of thinking.

Guided Self-Analysis was designed primarily as a therapeutic tool rather than a research device. However, it is a technique which provides a structured method for classifying certain verbal behaviors as is the Flanders' technique. A knowledge of whether Flanders' interaction analysis can be successfully used to promote verbal behavior change would provide some basis, however oblique, for testing the efficacy of GSA as a worthwhile technique for changing verbal behavior. With this in mind, a series of selected studies involving interaction analysis (mainly Flanders') is presented for consideration.

Kirk (1964) selected fifteen student teachers and trained them in the use of Flanders' interaction analysis. A control group received no such training. Each participant was observed for two twenty-minute periods before and after a semester of student teaching. Results indicated that students trained in interaction analysis asked more questions, gave fewer directions, and generally spoke less in the classroom. Kirk further found that the pupils of 'trained' student teachers tended to talk more often and more spontaneously. The talk patterns of pupils were, on the average, longer after exposure to subjects trained in interaction analysis.

Hough and Ober (1967) randomly assigned student teachers to five treatment groups. Each group of 84 students was exposed to different training regimens comprising human relations training and verbal behavior training. Every subject taught a simulated 30 minute lesson and his verbal behavior was categorized using a thirteen category revision of the Flanders' system. Findings indicated that both groups having received some direct, interaction analysis training tended to be classified as generally more indirect. Students in the other three treatment groups, on the other hand, tended to become more direct in their teaching behavior.

Lohman (1966) conducted a follow-up to the Hough and Ober study with sixty students drawn from the original sample. Thirty subjects belonged to the two groups that had received some training in interaction analysis and the other thirty belonged to the three groups that had not received such training. All sixty subjects were observed once again using the same 13 category system. Their verbal behaviors had not changed substantially from the previous year - those trained in interaction analysis were classified as 'indirect' and those not so trained as 'direct'.

Zahn (1965) examined the effects of interaction analysis training on both the verbal behavior and attitudes of a group of student teachers. Cooperating teachers were asked to rate the student teachers at the end of the in-school experience. Students trained in interaction analysis were not rated as more proficient than those not so trained. However, a significant positive change in attitudes was reported for 19 of the 23 in the groups receiving interaction analysis training. Of the remaining 69 students comprising the other three treatment groups, none of which received any interaction analysis training, only 36 became more positive in their attitudes as measured by the Teaching Situation Reaction Test (TSRT).

Hough and Amidon (1967) conducted a study in which the effectiveness and attitudes of a group of student teachers receiving interaction analysis training were examined. The attitudes of trained student teachers, as measured by the TSRT, showed significant pre- to post-test changes in a positive direction. The most significant attitude changes were registered by students who belonged to the lower 1/3 on the Dogmatism Scale, indicating an open belief system. Effectiveness ratings by faculty consultants showed no significant difference between students who had been trained in interaction analysis and those who had received no such training.

Furst (1967), working with 3 groups of 10 secondary student teachers, measured the effects of interaction analysis training on the verbal behaviors and attitudes of these individuals. Two groups received training either prior to or during student teaching and a third group received no such training. Teachers trained in interaction analysis were found to differ significantly in their acceptance of pupil ideas and in their reduced rejection of student behavior. Furst also found a significant positive change in attitudes as measured by the TSRT for students trained in interaction analysis but not for those without such training.

Rebstock (1967) conducted a study in which a number of student teachers were trained in the use of the Classroom Verbal Behavior Log (VRBL), another technique for categorizing teachers' verbal behavior developed by Mork at the University of Minnesota. He also examined attitude and personality changes as measured by the Study of Values, the MTAI, and the Edwards Personal Preference Scale. Of twenty-two null hypotheses based on various attitude and personality dimensions, only one was rejected. The hypothesis related to political values on the Allport-Vernon-Lindzey Study of Values indicated a significant positive change in this category for the control group. This was interpreted by the investigator as a tendency to be more indirect on the part of the experimental subjects. Of 36 null hypotheses related to changes in verbal behavior as measured by the VRBL, seventeen were rejected. Experimental subjects were seen to pay greater attention to higher cognitive levels of thought; encouraged pupils to talk at these levels; and utilized verbal behaviors related to creativity, personal involvement and positive praise.

The studies described in this section were included because they provide evidence to indicate that training in a system designed to categorize teacher-pupil interaction does, in many instances, effect significant changes in the verbal behaviors of the trainees. Moreover, in some cases, attitudes of individuals trained in such a system have shown significant positive changes over the treatment period. The present study has the following as two of its major goals: to measure the changes in verbal behavior effected by GSA; to measure changes in the attitudes of the participants.

Interaction Analysis Feedback

In this section studies in which interaction analysis training was augmented by regular feedback to the subject from trained observers are included.

Wright (1968), in a study conducted at Temple University, examined the effects of both interaction analysis training and feedback on the verbal behaviors and attitudes of in-service teachers. Twenty-eight subjects were assigned to four treatments: (1) training in Flanders' system along with regular feedback from a trained Flanders' observer; (2) training in Flanders' system along with regular feedback by means of self-analysis of audio-tapes of selected lessons; (3) in-service instruction in art and science along with regular feedback from a supervisor using a conventional rating device; (4) in-service instruction in art and science along with regular feedback by means of self-analysis of audio-tapes of selected lessons. Attitudes were measured by means of the Teaching Situation Reaction Test and the Rokeach Dogmatism Scale. No significant changes in attitude were observed over the course of this project. However, groups with interaction analysis training were observed to become more indirect than those without such training. Furthermore, the supervised groups became more indirect than those who obtained feedback through self-analysis.

Bondi (1969) trained two groups of student teachers in the Flanders' system. He provided regular feedback from trained observers to only one group. On fifteen of twenty-four measured verbal behaviors, the group receiving feedback differed significantly from the group not receiving feedback. Birch (1969) concluded that,

> the acquisition of specific analytical data about one's behavior has an effect that extends well beyond the effect of possessing an analytical conceptualization of verbal interaction behavior (p. 61).

Videotape as a Feedback Mechanism

Studies by Wright (1968), Bondi (1969), and Gage, Runkel and Chattergee (1963), have illustrated that feedback information from various sources and at various points in time does generate dissonance within the individual often sufficient to promote cognitive changes and subsequent modifications to the system of expressive behavior.

The use of videotape recording as a feedback instrument would seem to meet two important criteria with reference to feedback, that is, immediacy and accuracy. The criterion of immediacy permits the provision of feedback information as close to the original act being monitored as necessary. Most other feedback systems are far less flexible. The videotape provides an exact replication of the events as they actually occurred within the limitations prescribed by the number and range of the cameras used to record the event.

The field of psychotherapy has recognized the value of this technique in its training and supervision programs (Shiff and Reivich, 1964; Benschoter, Eaton and Smith, 1965; Suess, 1966). In a number of projects, resident analysts were regularly videotaped interacting with patients. A replay of the tape would then be viewed by the resident and his supervisor. Some anxiety was noted in the residents during the initial taping sessions but it soon disappeared. The supervisor was freed from having to rely on written notes and memory, neither of which provided the accuracy of the videotape. Both residents and supervisors were reported to favor the technique.

Closed circuit television and videotape recording have been used as therapeutic aids with mental patients. In a controlled experiment, Floy, Chernell, and West (1965) videotaped 80 consecutive patients admitted to a state mental institution. Every alternate patient was allowed to view himself on the initial tape and on subsequent tapings of sessions with resident therapists. All 80 patients were then clinically judged by a panel of residents on a five point scale. The categories described the patients' conditions as: (1) unchanged; (2) minimally improved; (3) moderately improved; (4) greatly improved; (5) cured. A significantly greater number of patients who had viewed themselves on videotape were classified as 'greatly improved' or 'cured'. Commenting on the value of using videotape in behavior change projects, Grueunberg, Liston, and Wayne (1969) state,

> We think the implication here is that an individual viewing himself on videotape has the opportunity to distinguish the model he has of his own behavior and the reality of his behavior and he can thus make whatever changes he sees fit (p. 100).

Alger and Hogan (1969) reported on a successful program in family and marital counselling in which videotape feedback was an important component. Self-confrontation, made possible by means of videotape, was deemed an essential ingredient in promoting self-analysis and behavior change.

Waltz and Johnstone (1963), in a similar study, reported that,

> There are differential responses to videotaping. It may be desirable to develop an "index of readiness" for videotaping . . . (so that) . . . counsellors could be taped at that stage of their preparation where they would be most able to use the results in a positive approach to professional growth (p. 236).

Their contention is consistent with this investigator's belief that the GSA system may be more useful with certain individuals than with others. A major goal of the current study is to develop some means of predicting for whom GSA training is most beneficial.

Microteaching, as developed by Allen and Clarke (1967) at Stanford University, used videotape as the basic means of providing feedback information to the participants. Student teachers taught short lessons to small groups of pupils and their performances were videotaped. The tapes were then replayed and analyzed by the student and a supervisor, after which the student working with a new group of pupils, would re-teach the same lesson integrating as far as possible the modifications suggested by the analysis. The second lesson was also videotaped, analyzed, and compared to the first performance. The sequence could be repeated on a number of occasions. Microteaching permits the participant to focus on a rather small, manageable number of behaviors at any one time. Working with a small group of pupils removes the threat of loss of control from the student teacher's mind, but sacrifices the reality of the classroom situation.

Schueler and Gold (1964), in a report on the Hunter College Research Project, found that students who were supervised by means of kinescope recordings only, improved their teaching performances over a group of students which was supervised by faculty consultants, and a third group supervised by means of kinescope recordings plus regular visits from faculty consultants. A distinct advantage to a program of self-supervision via kinescope recordings was that,

> the privacy of videorecording makes it possible for a teacher to review his own performance without subjecting himself to the threat of a supervisor's visit (p. 364).

Classroom performance was measured by means of OSCar, a multidimensional instrument used to categorize pupil-teacher interaction, developed by Medley and Mitzel (1958).

Johnson (1969) carried out a microteaching project in which self-analysis by means of videotapes and training in interaction analysis were integral parts. He used the Minnesota Teacher Attitude Inventory to determine the attitudinal patterns of the student teachers participating. He reported his major findings as follows:

1. Self-supervision tends to promote indirect teaching.
2. Self-supervision tends to promote higher scores on the MTAI.

Although the findings in the Johnson study were inconclusive, further investigation into the relationship between attitudes and verbal behaviors among individuals exposed to structured self-analysis treatments would appear to be justified.

Birch Study

Birch (1969) identified certain components within the GSA procedure and attempted to identify the treatment effects of each of them on the verbal behavior of a group of pre-service elementary student teachers. The major factors examined were:

1. Self-confrontation by means of videotape.
2. Using a systematic coding system to categorize the verbal behavior of others.
3. Self-analysis (self-coding) which included the first two components.

The sample consisted of forty students enrolled in a Social Science Curriculum and Instruction course at the University of California. Another eight students enrolled in a Social Issues course were selected to be used as a no-treatment control group. The forty students were randomly assigned to five treatment groups: (1) full GSA; (2) self-confrontation with coding; (3) self-confrontation only; (4) coding only; (5) no treatment. These five groups were all exposed to an Inquiry Orientation course.

Pre- and post-treatment videotapes were completed for all 48 participants. These tapes were analyzed by a three man panel of judges to test the hypotheses. Each group received the appropriate kind of training through the period of the project during which they were engaged in student teaching. Independent variables for the study were as follows: (1) Inquiry Orientation course; (2) self-confrontation; (3) behavior coding; (4) self-coding.

Dependent variables were of two kinds: direct and indirect. The sixteen direct variables were drawn from Schedules A, B, C, D. The indirect criterion variables formed a series of six indices of interaction derived from the direct variables:

1. Questioning strategies $\frac{\text{leading + probing}}{\text{rhetorical + basic}}, \frac{L + P}{R + B}$
2. Response strategies $\frac{\text{extending}}{\text{closure + sustaining}}, \frac{E}{C + S}$
3. Total teacher talk $\frac{\text{questions + responses}}{\text{instruction + discipline + other}}, \frac{Q + R}{I + D + O}$
4. Teacher/pupil talk patterns $\frac{\text{proportion of pupil talk}}{\text{proportion of teacher talk}}, \frac{P}{T}$

   $\frac{\text{average length of pupil utterance}}{\text{average length of teacher utterance}}, \frac{LNTH\ P}{LNTH\ T}$
5. General Index of Interaction *(GII)*

$$\frac{L + P}{R + B} + \frac{E}{C + S} + \frac{Q + R}{I + D + O} + \frac{1}{2}\frac{\%\ P}{\%\ T} + \frac{1}{2}\frac{(LNTH\ P)}{(LNTH\ T)}$$

These six indirect criterion variables were used to test the hypotheses but estimates of effects for all the direct variables were obtained to assist in the interpretation of the results.

Analysis of variance of the General Index of Interaction revealed a significant treatment effect for self-coding (full *GSA*) at the .0005 level. Significant treatment effects for self-coding (full *GSA*) were found on the Questioning Index ($p<.0003$); on the Response Index ($p<.0186$); on the Teacher Talk Index ($p<.0020$). No significant treatment effects for self-coding were found on either of the final two indices. No significant treatment effects were found for any other group on any of the six indices under consideration. An examination of the observed means of various treatment groups on the five other indices revealed that:

1. On the questioning index, the full *GSA* group's observed mean of 1.92 was considerably greater than the observed means of any of the other treatment groups: self-confrontation and coding, .67; inquiry orientation course, .43; control group, .16.
2. On the response index, the full *GSA* group's observed mean of .32 was greater than the observed means of the other groups: self-confrontation and coding, .12; inquiry orientation course, .10; control group, .06.
3. On the teacher talk index, the full *GSA* group's observed mean of 2.89 was greater than the observed means of the other groups: self-confrontation and coding, 1.35; control group, .98.
4. On the two indices related to teacher/pupil talk patterns, there was no evidence to suggest that the full *GSA* treatment group was superior to groups other than the no-treatment control group.

Certain findings of the study highlight the importance of Guided Self-Analysis in modifying the verbal behavior of student teachers.

1. *GSA* had an effect on the verbal behavior of pre-service intermediate teachers.

2. GSA seemed to affect questioning strategies most but was also responsible for changes in response strategies and total teacher talk.
3. GSA was effective in decreasing the number of rhetorical and basic questions, as well as the number of closure responses and the amount of instructional talk.
4. GSA was effective in increasing the number of leading and probing questions, and extending responses.

The Birch study provided evidence that GSA could effect specific changes in the verbal behaviors of pre-service teachers. Birch succeeded in illustrating that Guided Self-Analysis, taken as the sum of its parts, effects significant changes in a number of teaching verbal behaviors; but that the component parts, used individually, apparently have little effect on the same verbal behaviors.

Attitude Change and the MTAI

Another purpose of this study was to determine whether the attitudes of student teachers trained in the use of Guided Self-Analysis would change significantly over the period of a student teaching practicum.

Although considerable research has been carried out over the past 20 years using the Minnesota Teacher Attitude Inventory, only a limited number of studies have involved student teachers.

In an early study, Callis (1950) used the MTAI with a number of University of Minnesota student teachers. One group engaged in student teaching showed no significant change in attitudes over a six month period. A second group engaged in course work demonstrated a significant positive change in attitudes over a six month period.

Sandgren and Schmidt (1956) administered the test to 393 seniors at Ball State Teachers College prior to and immediately following a full term of student teaching. Findings indicated that both male and female subjects registered significant and desirable attitudinal changes. Elementary candidates had higher mean scores on the MTAI than secondary candidates both before and after the treatment period.

Day (1959) administered the MTAI to 196 seniors at Florida State University at the conclusion of a period of internship. The following year, 135 of them were employed as full-time teachers and the MTAI was administered for the second time six months after the term had begun. A mean loss of 20 points on the MTAI was registered. Another group of 154 seniors completed the MTAI before and after an eight week internship. A mean loss of 4.2 points was registered for that group. It would appear that attitudes as measured by the MTAI tend to become less positive as students extend their experiences into the field.

In a similar study Rabinowitz and Rosenbaum (1960) attempted to measure the effect of teaching experience on attitudes. The MTAI was re-administered to a number of graduates of four New York universities three years after graduation. An overall decline in mean scores from 60.8 to 40.7 was registered. Responses to 80% of the items changed in a negative direction from one test administration to the next.

In 1967 Campbell conducted a study using the MTAI in which he classified 90 of the 150 items into 5 categories. These categories had been originally used by the test authors (Cook, Leeds and Callis, 1951) to serve as the socio-educational base upon which the test was constructed. The dimensions are listed as follows, including the number of items selected by Campbell as being representative of each category:

1. Moral Status (14)
2. Discipline (19)
3. Principles of Child Development and Behavior (18)
4. Principles of Education (22)
5. Personal Reaction (17)

Physical education majors completed the MTAI before and after a semester of student teaching. No significant differences between pre- and post-test total scores were uncovered. However, when results on the five dimensions were compared by means of non-parametric Sign Tests, a significant shift in attitude was registered on one dimension, that of Principles of Child Development and Behavior. The shift was negative, but did illustrate that additional information could be generated from the data when further analyses were conducted on the dimensions considered individually.

Nichol (1969), in describing an internship program at McGill University, reported that the total mean score on the MTAI for a group of 18 student teachers changed significantly in a positive direction over the treatment period ($p<.01$). Nichol analyzed the data in terms of Campbell's dimensions and used Sign Tests to compare the pre- and post-test scores on each of the five dimensions. On three of the five aspects the interns displayed significant positive changes in attitude (Moral Status, $p<.036$); (Discipline, $p<.030$); Principles of Child Development and Behavior, $p.<.001$).

Smith (1969), in a study of another group of students in the same internship program at McGill during its second year of operation, reported that the interns showed significant positive shifts in attitude on the total score and that they also shifted their attitudes significantly on two of Campbell's dimensions. Positive changes in both Principles of Child Development and Principles of Education were significant at the .05 level of confidence.

The findings of Campbell (1967), Nichol (1968), and Smith (1969), related to dimensions on the MTAI provide justification for researchers to continue to examine attitude change among individuals involved in a variety of 'student teaching' activities, of which Guided Self-Analysis is one.

A number of factor analyses have been completed on the MTAI in recent years (Horn and Morrison, 1965; Yee and Fruchter, 1971) supporting Campbell's (1967) view that the MTAI does not measure a unitary attitude.

MTAI as a Predictor

Another purpose of this study is to examine the relationship between the verbal behavior changes effected by GSA and certain attitudinal configurations based upon scores on the MTAI test administered to all participants at the outset of the project. It might be possible, then, to use the MTAI as a predictive instrument to guide Field Experience personnel in their selection of individuals for exposure to a GSA treatment.

At the University of Manitoba, Stein and Hardy (1957) examined, among other things, the relationship between MTAI scores and proficiency ratings of a number of elementary and secondary student teachers. Ratings were done by the pupils in the cooperating schools. Correlations of .39 and .56 for elementary and secondary students respectively indicated that the use of the MTAI as a predictor of teaching success might have a degree of validity. Further research was definitely indicated.

Cook, Kearney, Rocchio and Thompson (1956) correlated MTAI scores of a number of teachers with ratings by pupils, principals, and supervisors. The correlations, all positive, ranged from .50 to .63. They concluded that the MTAI had considerable validity as a predictor of teaching success. A further suggestion was made that the MTAI could be utilized to select teachers for promotion.

Standlee and Popham (1959) attempted to use the MTAI as a predictor of teacher effectiveness. The MTAI was administered to 880 Indiana public school teachers and each subject was rated by local administrators using a decile rating scale designed to provide a rating of over-all teaching effectiveness. The relationship between the two measures was tested by means of the chi square and a statistically significant relationship was reported ($p<.05$). Teachers registering higher scores on the MTAI tended to be given higher ratings from the administrators.

Wilk and Edson (1963) attempted to relate certain predictor variables, such as scores on the MTAI and counsellors' judgments, to teaching success. They found that students scoring high on the MTAI tended to utilize 'integrative' teaching behaviors in the classroom. The students who scored low on the MTAI did not, however, exhibit 'dominative' teaching behaviors.

Bowers and Soar (1962) in a study designed to investigate the influence of teacher personality variables on classroom interaction stated that

> . . . personality traits condition, modulate, promote certain responses from pupils; they activate, direct, formulate pupil reactions in the classroom learning situation (p. 309).

Both Tyler (1954) and Michaelis (1954) conducted similar research studies in which each attempted to use arrays of personality and attitude inventories to predict student teaching success. Tyler was successful in isolating certain subscales from these instruments which differentiated between levels of teaching success, although, in general, he reported negative results. Michaelis conducted a similar study with elementary student teachers. His findings, too, were quite inconclusive. Both Tyler and Michaelis felt that research in the area ought to be continued but that the discriminability of the criterion tests of teaching success first had to be sharpened considerably.

Justiz (1968) attempted to develop a means of measuring teacher effectiveness based upon the results obtained by pupils on criterion instruments. He then sought to relate levels of effectiveness to the attitudes of the participants, a group of 17 student teachers. Attitudes were measured by the MTAI.

The 17 students were assigned to two senior high schools where they taught two successive thirty minute lessons in two subject areas considered to be entirely unfamiliar both to them and to their pupils. Pupils were assigned to the various teachers on a random basis for both lessons. The night before they were required to teach, each student was provided with two kits containing sets of objectives, related subject matter, and practice exercises. After each lesson, the pupils were tested, under close supervision, with carefully constructed and validated criterion measures.

Each student teacher was ranked according to the mean score generated by the pupils in each of his groups. The two sets of ranks for students in each school were correlated, using Spearman's Rank-Difference Correlation method. The correlations were found to be significant at the .05 level of confidence in both schools. Students who ranked high in one area of teaching tended to rank high in the other.

These same students were also ranked according to their scores on the MTAI. These sets of ranks were then correlated with each of the two subject teaching ranks. The correlations derived were significant at the .05 level of confidence for both groups of students.

These findings indicate a degree of relationship between teacher attitude and general teaching ability, linking affective with cognitive role characteristics. "The MTAI, thus, appeared to be a reliable predictor of the pupil-achievement-producing abilities of senior high school student teachers (Justiz, 1968, p. 4)."

Getzels and Jackson (1963) provide a rationale for the present study's attempt to develop a valid instrument of prediction based upon certain personality traits when they state that:

> The personality of the teacher is a significant variable in the classroom. Indeed, some would argue it as the most significant variable. The educational impact of an Ichabod Crane or a Mark Hopkins, or a Mr. Chips or a Socrates, is surely not due solely to what he knows, or even to what he does, but in a very real sense to what he is (p. 506).

Summary

The present study has three major purposes:

1. to determine whether Guided Self-Analysis training will effect significant changes in the verbal behavior of a group of student teachers. To this end, we have considered in the present section (1) the theoretical framework of Guided Self-Analysis, (2) studies in which a similar technique of classifying verbal behavior has been used. Since self-confrontation by means of videotape is an integral part of the GSA system, a brief resume of its research use has been included.
2. to determine whether the attitudes of individuals trained in GSA change significantly over a period during which

they use such a technique. Certain of the studies related to the use of Flanders' interaction analysis also focussed on attitude change and were included for that purpose. Furthermore, an entire sub-section presented the major research done with student teachers in which the MTAI was the major instrument.

3. to determine whether certain attitudinal patterns on the MTAI can be used to predict whether certain individuals will benefit more than others from an exposure to a GSA treatment. The major studies in which certain personality traits were used as predictor variables for student teaching success have been included.

Waimon (1969) provided an eloquent conclusion to the rationale for the present study:

> Psychologists have demonstrated that the ability to discriminate and categorize one's own behavior is basic to an individual's ability to function effectively in his environment and to learn from his experiences. Research into teaching offers conceptual systems that will enable teachers to discriminate among the wide variety of behaviors which they are called upon to perform in classrooms. More than this, research into teaching offers in-service (and pre-service) teachers the means whereby they can begin to judge their own level of effectiveness and to set new levels to be attained. Form follows function in teaching as elsewhere. In the final analysis, teacher effectiveness depends on the individual teacher achieving greater mastery over his own linguistic behavior (p. 276).

Hypotheses

It is hypothesized that:

1.0 There will be no significant differences between the verbal teaching behaviors of student teachers trained in the use of certain Guided Self-Analysis schedules and those of student teachers not so trained.

2.0 There will be no significant differences between the attitudes of student teachers trained in the use of certain Guided Self-Analysis schedules and those of student teachers not so trained.

3.0 There will be no significant positive relationships between initial attitude scores and verbal behavior change scores.

CHAPTER III

DESIGN OF THE STUDY

Introduction

The purpose of the present study was to determine whether a program of Guided Self-Analysis would effect changes in the verbal teaching behaviors and attitudes of a group of elementary student teachers.

Each subject was videotaped at the beginning and at the end of a three month student teaching experience. The Minnesota Teacher Attitude Inventory (MTAI) was also administered prior to and after the in-school experience.

Subjects in the experimental group received training in Guided Self-Analysis, using Schedules A and B of the Inquiry program. Subjects in the control group received no such training but met once a week at the university in a Seminar on Teaching Problems conducted by the investigator.

Appropriate analyses of the pre- and post-videotapes and attitude instruments were completed to test the research hypotheses.

Sample

The subjects included in the study were drawn from among student teachers enrolled in the Professional Diploma/After Degree (PD/AD) program for elementary teachers at the University of Alberta during the 1970-71 academic year.

The PD/AD program was specifically designed to train individuals who already held recognized undergraduate degrees from other faculties or universities. The duration of the program was one academic year - from mid-September to mid-April.

Regular student teaching activities were organized into two three-week rounds - one prior to Christmas and one after.

Students enrolled in the program were required to complete courses in Educational Administration, Educational Foundations, Educational Psychology, and Curriculum and Instruction. A team of instructors was responsible for planning and coordinating the program for the 96 students registered in the Elementary route.

Since the Faculty of Education insisted that students be afforded the right to opt out of research projects, volunteers were solicited for the study. Each student was asked to complete the two preliminary "paper and pencil" instruments and at the same time indicate his willingness to participate in the study.

The Personal Data Questionnaire designed for the study served two major purposes. First, it provided information on personal characteristics, educational background and previous teaching and work experience of the target population. Secondly, it solicited the students' participation in the project (see Appendix B).

Thirty-six of the 88 students completing the questionnaire indicated a willingness to participate in the project. From that number subjects were randomly assigned to two groups of twelve - one experimental and one control group. The fact that students were asked to choose whether they would participate in this project, in another 'student teaching' project, or register for 'extra' subject area workshops caused some confusion, and the composition of the two groups changed a number of times during the preparatory stages. Last minute dropouts reduced the size of the control group to nine and it was not possible at that point to find replacements. During the course of the project another control subject was forced to withdraw because of pregnancy. The final composition of the groups in the project was 12 experimental and 8 control subjects.

The data from the Personal Data Questionnaire are arranged in such a way as to describe the total population available to the study as well as the sample sub-group - those students who were involved in the project (see Table I). Of the ninety-six students registered in the Regular Program, eighty-eight completed the questionnaire. The data indicate that there were few differences between the sample and total group on the various characteristics tapped by this instrument.

The sample population had a mean age of 25.9 compared with a mean age of 22.8 for the total population group. This difference was primarily due to the fact that two of the twenty subjects in the sample group were over forty years of age - representing a higher proportion of the over forty group than would have been found in the total group. The median age for both groups was 22.

The sample group were all volunteers in the project, while many of the total group did not volunteer to participate. Thirty-six of the 88 student teachers registered in the (PD/AD) program did volunteer and it was from that sub-group that the sample population was

TABLE I

DATA COMPILED FROM PERSONAL DATA QUESTIONNAIRE (PDQ)

Characteristic		Total Population	Sample Population
Sex	Male	17	4
	Female	71	16
Marital Status	Single	57	15
	Married	31	5
Undergraduate Study	The University of Alberta	68	14
	Others	20	6
Degrees	B.A.	74	18
	Others	14	2
Majors	English	11	3
	History	8	3
	Psychology	21	5
	Sociology	20	3
	Others	27	6
Previous Experience	Classroom	9	2
	Other	33	8
Age	Range	20-53	20-53
	Mean	22.8	25.9
	Median	22	22
	Mode	21	21, 22

randomly drawn. Those who refused gave the following reasons to justify their decision not to participate:

1.	prefer to take 'extra' courses (workshops).........	13
2.	work outside the faculty would interfere..........	20
3.	no time available................................	11
4.	other faculty commitments........................	3
5.	miscellaneous reasons............................	5

Instruments

GSA Schedules. The theoretical principles upon which GSA is based were presented in the previous chapter. The purpose of this section is to outline the basic content and procedures inherent in the two Schedules which were designed to serve as guides for classroom teachers attempting to modify certain of their verbal behaviors.

A distinct advantage of GSA is that it permits consideration of a limited number of behaviors at one time, never more than five. Many other schemes, originally designed as observational techniques, are highly complex and require very extensive training programs. Designed as intervention techniques, GSA Schedules are well-organized and simple to follow. Teachers are trained to analyze their own behaviors without assistance from supervisors; to develop personal profiles; to compare these profiles with a number of models included in each Schedule; to draw inferences between their teaching behaviors and the expected cognitive development of the pupils; to establish a set of personal goals related to changing behaviors and to commit themselves to realizing the stated goals.

Birch (1969, p. 46-48) presents a scheme of the basic activities engaged in by anyone following the GSA program:

A. First Guided Self-Analysis
   1. Record on videotape self interacting with pupils
   2. View videotape of self interacting with pupils
   3. Familiarize self with coding categories
   4. Analyze own behavior (identify specific behaviors, discriminate between behaviors in different but related categories)
   5. Sum frequencies, compute proportions, construct profiles
   6. Compare profiles with interpretive figures and characterize own teaching behavior
   7. Make inferences about learning consequences of observed teaching behavior
   8. Formulate operational goals and make a commitment to achieving them.

B. Inter-taping period
   1. Observe pattern and flow of interaction in terms of a new perceptual set which involves increased awareness of pupil responses
   2. Make attempts to modify and restructure own behavior
   3. Continue tentative re-integration of the cognitive map.

C. Second Guided Self-Analysis

1. Record on videotape self interacting with pupils
2. View videotape of self interacting with pupils
3. Familiarize self with coding categories
4. Analyze own behavior (identify specific behaviors, discriminate between behaviors in different but related categories)
5. Sum frequencies, compute proportions, construct profiles
6. Compare profiles with interpretive figures and characterize own teaching behavior
7. Compare profiles with own previous profiles
8. Characterize the observed changes
9. Make inferences about the learning consequences of observed changes
10. Formulate operational goals and make a commitment to achieving them.

D. Inter-taping period

The sequence of activities outlined above is made operational in each schedule by means of a series of tasks which are carefully sequenced. For example, Schedule B is divided into three main parts. Part One includes an introduction and a series of ten tasks to be completed by each teacher/observer. Part Two contains a number of sets of worksheets which can be used during the training sequence for practice coding of demonstration films, video-tapes and typed scripts. Part Three contains a number of sets of worksheets which the teacher/observer can use in coding and analyzing her own videotaped performance.

Following is a brief description of each of the Tasks included in Part one of Schedule B:

Task One - provides an explanation of the coding categories. Teacher responses are categorized as CLOSURE, VERBAL REWARD, SUSTAINING, EXTENDING. Several pages of concrete examples of these responses follow with an explanation of each.

Task Two - provides a series of examples of coded teacher responses. Each coded response is explained.

Task Three - provides a series of uncoded teacher responses which can be used for practice coding. Answers with explanations for each response are included.

Task Four - provides an opportunity for the teacher to code his own performance from videotape.

Task Five - provides clear directions with which the teacher/observer can compute the percentage of each response category on his own tape.

Task Six - further directions are provided to assist the teacher/observer in computing a Question/Response ratio (using data from Schedule A) which would add a further dimension to his information concerning his performance. A total profile on Questions and Responses is then completed (see Figure 1).

Task Seven - provides the teacher/observer with information

Questions

I	% Information	
L	% Leading	
P	% Probing	

Responses

C	% Closure	
S	% Sustaining	
E	% Extending	

Q/R Profile

I + L	
L + P	

C + S	
S + E	

FIGURE 1

QUESTION/RESPONSE PROFILE

relative to an understanding of the question/response relationship.

Task Eight - provides a series of five illustrative Q/R profiles.

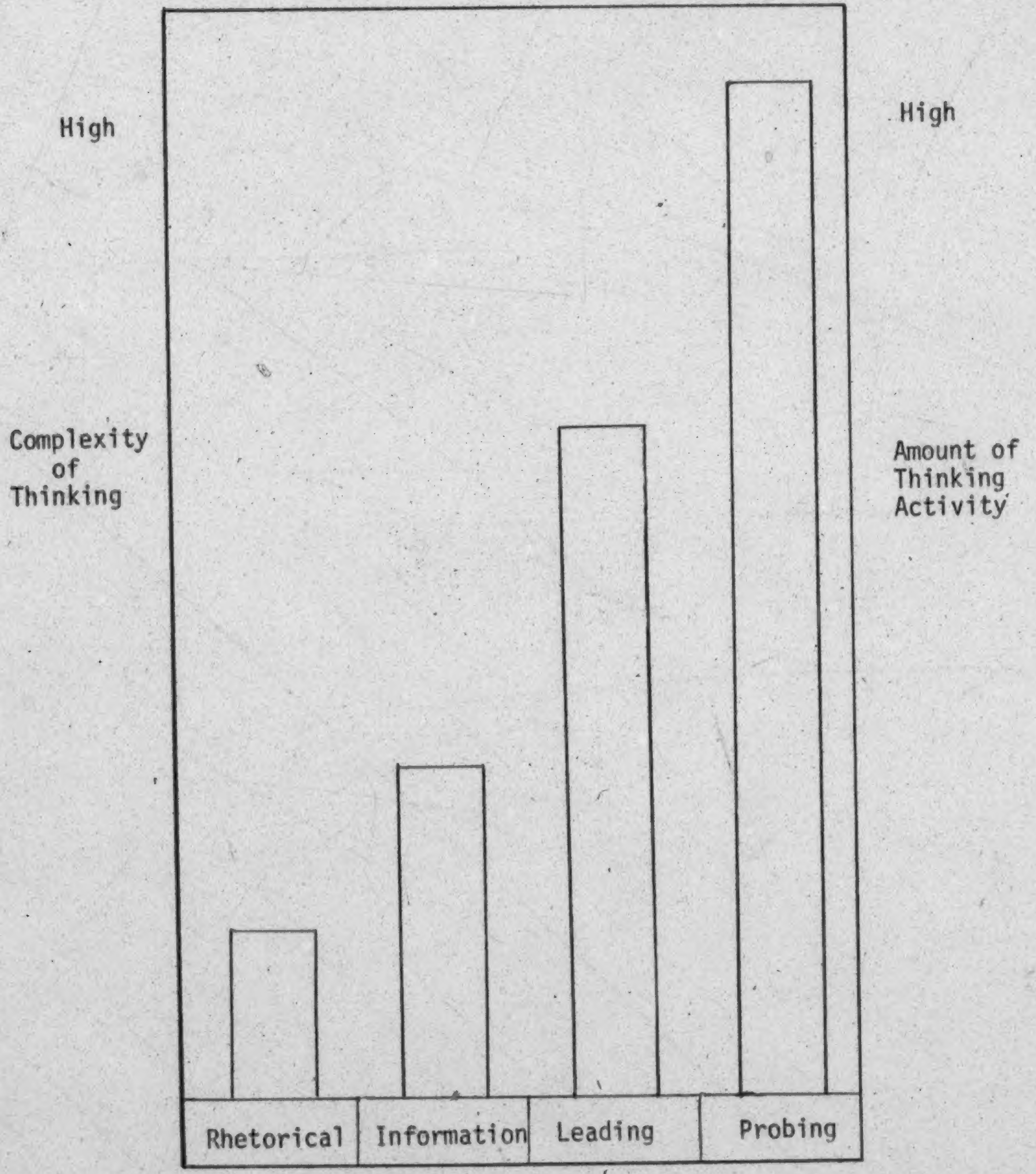
Task Nine - provides guidelines for interpreting the teacher/observer's own Q/R profile.

Task Ten - teacher/observer is posed a series of open-ended questions to assist him in describing his own behaviors as already delineated and to set down in writing some specific changes to be effected in those behaviors.

All schedules follow a similar pattern. Schedule A is concerned with Questioning patterns and categorizes them as follows: Information, Leading, Probing, and Rhetorical. Schedule C classifies teacher talk patterns as Instruction, Classroom Management, Behavior Management, Other Teacher Talk. Schedule D permits the teacher/observer to describe the flow of classroom talk so that characteristic patterns may be identified. Both teacher and pupil talk is quantified and compared by percentage.

The GSA Schedules are designed to be used in a cumulative manner since verbal behavior in the context of the classroom cannot be atomized and examined clinically without underlining the importance of the overall pattern of the discourse. Time limitations in the present study made it necessary to limit the use of GSA Schedules to the first two - Question (A) and Response (B).

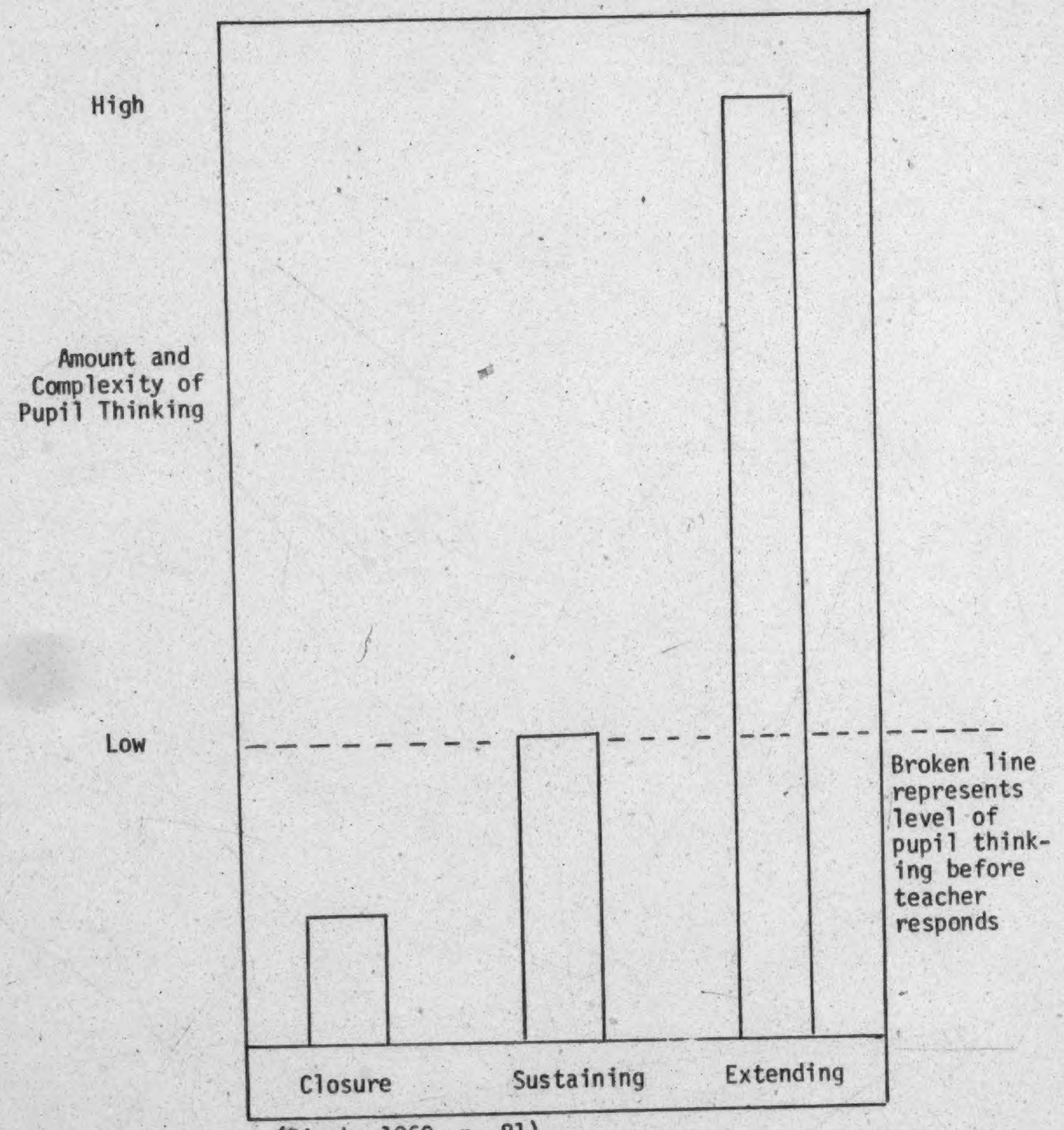
Figures 2 and 3 graphically represent the amount and complexity of pupil thinking related to the kinds of questions and responses



(Birch, 1969, p. 79)

FIGURE 2

RELATIONSHIP BETWEEN TYPE OF TEACHER-POSED QUESTION
AND
TYPE OF THINKING DEMANDED OF STUDENT



(Birch, 1969, p. 81)

FIGURE 3

RELATION BETWEEN TEACHER RESPONSE AND PUPIL THINKING used by the teacher in a dyadic interaction episode.

Minnesota Teacher Attitude Inventory. The *MTAI*, developed by Cook, Callis, and Leeds, is undoubtedly the most popular instrument available for measuring teachers' attitudes towards children. It has also been used with pre-service teachers in a number of studies. Getzels and Jackson (Gage, 1963a) refer to more than fifty studies involving this instrument.

The *MTAI* attempts to measure those attitudes of the teacher which predict how well he will get along with pupils in interpersonal relationships (Cook, Leeds, Callis, 1951). There is some evidence to suggest that a significant correlation exists between the social atmosphere in the classroom and the teacher's attitude toward children. Satisfactory and smooth teacher-pupil relationships should contribute to the development of an environment in which effective pupil learning is increased.

The *MTAI* consists of 150 items with which respondents "agree" or "disagree". Items are scored +1 or -1 depending upon whether they conform to the acceptable responses determined by the authors. Total scores can range from +150 to -150, the higher scores representing positive attitudes and the lower scores representing negative attitudes. This instrument was developed by means of a "concurrent validity procedure" whereby groups of teachers rated as superior or inferior on several criteria responded to several series of test items related to the attitudes under study. Items which were consistently accepted or rejected by superior and inferior teachers in a dichotomous pattern were included in the Inventory.

A reliability coefficient using the Spearman-Brown split-half procedure has been reported as .93.

In this study, the MTAI was used to determine the attitudes of student teachers toward children; to determine whether an intervention technique such as GSA would change these attitudes; and finally to determine whether any positive relationships exist between scores on the MTAI and changes in certain verbal behaviors.

In order to examine possible dimensions on the MTAI similar to those generated by Campbell (1967), and used in studies by Nichol (1968) and Smith (1969), a factor analysis was carried out on the pre-test administration of the MTAI. In order to permit the completion of a factor analysis, the instrument was administered to 154 PD/AD students registered in both elementary and secondary departments of the Faculty of Education. A complete description of the factor analysis is contained in Chapter IV.

Personal Data Questionnaire. This instrument was designed especially for the project and included information on personal characteristics, educational background, previous teaching or other work experience. The last two items solicited the student's participation in the project, directing those who refused to indicate reasons for their decision. A copy of the PDQ will be found in Appendix B.

GSA Questionnaire. At the end of the project each experimental subject completed a 24 item open-ended questionnaire related specifically to the GSA Program (Appendix B).

General Questionnaire. All subjects, both experimental and control, completed a questionnaire related to student teaching, cooperating schools and teachers, faculty consultants, and the PD/AD program. Part One of the Questionnaire was to be answered on a four part Likert-type scale - strongly disagree, disagree, agree, strongly agree. Part Two was open-ended and permitted the students to indicate criticisms as well as offer their own recommendations for improving the overall training program (Appendix B).

Log Books. Each participant was asked to keep an ongoing record of his experiences throughout the project and these were turned in at the end of the project.

Interviews. A one-half hour taped interview was completed with each participant at the conclusion of the project. The interview was designed as a follow-up to both the GSA and General Questionnaire which were administered several days earlier.

Equipment

Videotape equipment was used for two major purposes: (1) to collect samples of verbal behaviors of the participating students at two points in time - prior to the project and at its completion; (2) to permit the experimental subjects to complete a GSA program in which videotape played a major role.

The videotape equipment and technical assistance were supplied by the Audiovisual Media Centre of the Faculty of Education. The VTR package consisted of an AMPEX VR5100 videotape recorder mounted on the lower shelf of a moveable stand. On the top shelf of the stand a 27" monitor was mounted (General Electric #27A2). One inch AMPEX 161-60 magnetic tapes were used throughout the project. Each tape was capable of holding 60 minutes of both sound and picture. A Sony CVC 2100A camera was used.

Each taping session required the setting up of this equipment. The average time for each set-up was estimated at between 5 and 7 minutes. Figure 4 shows a typical classroom with the equipment arranged. All pre- and post-test VTR's were completed with the assistance of personnel from the Audiovisual Centre. The experimental subjects were given a one-hour training period in the use of all the equipment for recording and viewing. With assistance from the project director, students completed their own videotape recordings. A minimum of difficulty was encountered after the first few sessions. In fact, at one point, an entire fifteen minute VTR was completed by a Grade Five pupil.

Sound problems, which had been anticipated from the outset, were partially overcome by using a highly sensitive 'studio' microphone in place of the small 'neck' microphone usually used with such equipment. The use of a "mixer" would have permitted the utilization of both microphones, thus enhancing the audio portion of the VTR's.

Throughout the project a room equipped with a complete playback unit was reserved at the University. This permitted students to analyze completed tapes either at the cooperating school or on the campus, whichever was more convenient. Schedules were prepared allowing them to complete these tasks in the late afternoons or in the

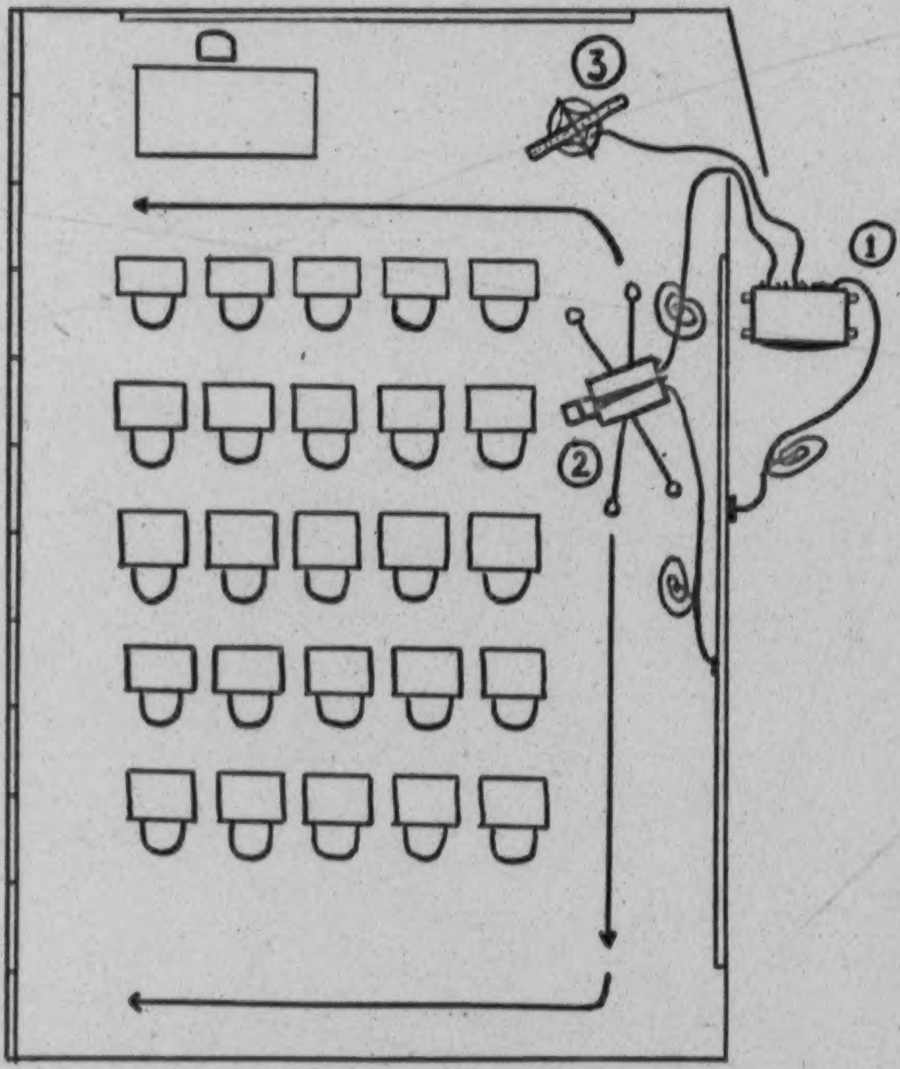


Figure 4

TYPICAL CLASSROOM SET-UP FOR VIDEOTAPING LESSONS.
(1) Videotape recorder and monitor, (2) Camera,
(3) Microphone

evenings four days per week.

Each experimental subject was issued with his own personal one-hour AMPEX tape on which was dubbed a copy of the pre-test lesson and on which he recorded the next three prepared lessons. All pre- and post-test tapes were held on a separate set of tapes for later analysis by the observers.

Treatment

Both groups of student teachers, experimental and control, were assigned to two elementary schools under the jurisdiction of the Edmonton Public School Board for a student teaching practicum extending from early January until late March. During January and February, the students spent every Tuesday and Thursday morning at their co-operating school. For the first three weeks in March, they were assigned to the same school for five full days each week. The total in-school experience for each participant was 23 full days.

All subjects completed the Minnesota Teacher Attitude Inventory at the beginning and at the end of the project.

Fifteen minute videotapes of each participant, both experimental and control, were completed by technicians from the Audio-Visual Division at the beginning and at the end of the project.

The experimental group trained themselves in Guided Self-Analysis. They learned to videotape themselves, to code, analyze, and interpret specific verbal behaviors with a view to modifying them. Two GSA schedules (A and B) were used by the participants. The project director was available at all times to assist participants in the use of technical equipment and GSA schedules, but the major emphasis was on independent activity. The emphasis on self-training by the experimental subjects was to determine whether the GSA schedules were sufficiently well prepared to permit their effective use under minimal training conditions.

Content of Videotaped Lessons. The subject matter for the lessons used by the subjects in their videotapings was optional. Some curriculum areas lend themselves more easily to a question/response format than others. However, the realities of the in-school organization made it difficult, if not impossible, to select a specific subject area for all the students so that comparisons between performance could be more readily carried out at a later time. Students had to be prepared to adapt themselves to the school environment into which each was placed. Lessons, then, were prepared in a wide range of curriculum areas by both control and experimental subjects. The only constraint laid on the format of the lesson was that it use a question/response pattern. Lessons were planned in the following areas: Social Studies, Language Arts, Reading, Arithmetic and Science. Student teachers were assigned, most often in pairs, to cooperating teachers at the Grade Two through Grade Six levels in the following manner: Experimental School: Grade Three - one pair of student teachers, Grade Four - one student teacher, Grade Five - two pairs of student teachers, Grade Six - two pairs and a student teacher; Control School: Grade Two - one pair of student teachers, Grade Three - one student teacher, Grade Five - one pair of student teachers, Grade Six - three student teachers.

Each experimental subject followed a similar sequence in the GSA program:

1. Completed a 15-minute videotaped lesson.
2. Analyzed the tape using Schedule A.
3. Analyzed the tape using Schedule B.
4. Prepared and taped another 15-minute lesson.
5. Analyzed the second tape using Schedules A and B.
6. Repeated the sequence.

The experimental subjects completed four 15-minute videotapes during the project and analyzed three of them according to Schedules A and B. The fourth tape was completed at the end of the student teaching period and held for analysis as post-test data.

Control group subjects were not exposed to the GSA program at any time during the project. However, in an attempt to offset a possible Hawthorne effect, this group participated in an on-campus one hour seminar each week conducted by the project director. The seminar focused on practical teaching and planning problems encountered by the members of the group during their in-school experience. Care was exercised to avoid discussing topics related to the GSA program during these sessions. Control subjects were permitted to view their initial videotape once with no comment from the project director. The nature of the project made it necessary for the director to spend more time in the experimental school than in the control school. However, none of the control students indicated any awareness of such disparity in supervision.

Selection of Schools

A certain number of schools under the jurisdiction of both Edmonton school boards, Public and Catholic, was allotted to the PD/AD program for student teaching projects. It was decided to avoid Open-Area schools for the project because the technical difficulties related to videotaping might be even more serious in such large areas. Schools had to be large enough to accept as many as twelve student teachers and this criterion eliminated a number of smaller schools. The two remaining schools were randomly assigned as the experimental and control schools. Both principals agreed to participate in the project and they and their staffs cooperated whole-heartedly throughout. School A (experimental) was situated in a lower middle income area of Edmonton - a rather socially homogeneous population. The school was large with some 600 pupils in twenty classrooms. School B (control) was situated in a similar socio-economic area but bordered on a rather affluent section from which it drew about 20% of its population. The smaller school was part of a larger complex - a Junior High School. Both schools were similar in their general organization.

Inter- and Intra-Observer Reliability

Each pre- and post-test videotape for both the experimental and control subjects was retained for analysis at the conclusion of the project. Each tape was analyzed using GSA Schedules A and B by two observers - the project director and his wife, an experienced elementary school teacher. The observers trained themselves using the materials supplied in the GSA manuals. Practice codings were completed using several videotapes completed by experimental subjects during the project.

Inter-observer reliability was ascertained for each coding by the two observers using Scott's coefficient (1955). Conventional reliability indices are based upon the assumption that all categories contained in a certain dimension have an equal probability of being used by one or both observers. In most behavioral research studies using categories of behaviors to be observed and coded the data are likely to be distributed unevenly across categories. Scott's coefficient ( ) was especially designed to correct for "the number of categories in the code, and the frequency with which each is used (Scott, 1955, p. 323)." The formula for deriving the coefficient is as follows:

$$\pi = \frac{Po - Pe,}{1 - Pe}$$

> where Po equals the percent of agreement between the two observers coding the same material; and Pe equals the percent of agreement between the same observers that could be expected by chance. Pe is calculated by summing the squares of the averages in each category and dividing by 100. Po is calculated by subtracting the sum of the differences between the percents assigned to each category by both observers from 100.

Tables II and III illustrate examples of Scott's co-efficient of reliability with Schedules A and B. Table IV lists all the inter-observer coefficients for every one of the 20 pre-test videotapes for both GSA Schedules A and B. The coefficients for Schedule A range

TABLE II

INTER-OBSERVER RELIABILITY COEFFICIENTS

SCHEDULE 'A'

QUESTIONING STRATEGIES

Category	Observer (%)		Difference (%)	Average (%)	$\frac{\text{Average}^2}{100}$
	A	B			
Rhetorical	07	07	00	07	.49
Information	80	82	02	81	67.24
Leading	13	11	02	12	1.44
Probing	00	00	00	00	.00
Total	100.	100.	04	100	69.17

$$\pi = \frac{Po - Pe}{100 - Pe} = \frac{(100-4) - 69.17}{100 - 69.17} = \frac{26.86}{30.86} = .87$$

TABLE III

INTER-OBSERVER RELIABILITY COEFFICIENTS

SCHEDULE 'B'

RESPONSE STRATEGIES

Category	Observer (%)		Difference (%)	Average (%)	Average^2
	A	B			
Closure	57	54	03	56	31.36
Sustaining	29	32	03	30	9.00
Extending	14	14	00	14	1.96
Total	100.	100.	06	100	42.32

$$\pi = \frac{Po - Pe}{100 - Pe} = \frac{(100-6) - 42.32}{100 - 42.32} = \frac{51.68}{57.68} = .90$$

TABLE IV

INTER-OBSERVER RELIABILITY

COEFFICIENTS FOR PRE-TEST VTR's

Tape No.	Schedule	Scott's Coefficient	Schedule	Scott's Coefficient
001	A	.91	B	1.00
002	A	.94	B	1.00
003	A	.94	B	.94
004	A	.80	B	.90
005	A	.93	B	1.00
006	A	.81	B	.81
007	A	.84	B	1.00
008	A	.87	B	1.00
009	A	.60	B	.95
010	A	.63	B	.90
011	A	.97	B	.95
012	A	.82	B	.92
013	A	.80	B	.85
014	A	.83	B	1.00
015	A	.80	B	.73
016	A	.65	B	.80
017	A	.84	B	.95
018	A	.52	B	1.00
019	A	.68	B	.93
020	A	.96	B	1.00

from .73 to 1.00. Eight of the twenty tapes yielded 1.00 coefficients of reliability. Table V includes all the inter-observer coefficients for the 20 post-test videotapes. The coefficients for Schedule A range from .69 to 1.00. Seventeen of the coefficients equal or exceed .80. For Schedule B, the coefficients range from .76 to 1.00. Eleven of the twenty coefficients were 1.00. The forty tapes were analyzed in a random order subject to the restriction that once a tape was selected all the episodes on it were completed at that time. Tapes held from one to four 15-minute segments.

In order to determine each observer's consistency in coding the tapes, two tapes were randomly selected for recoding after approximately two weeks had elapsed. Table VI indicates the intra-observer reliability coefficients derived. All four coefficients exceeded .80. Observer B had a higher consistency record than observer A, the project director.

Data Collection

Verbal Behaviors. The two fifteen-minute videotapes completed for each experimental and control subject were used to test the research hypotheses related to verbal behavior. Eleven criterion variables were derived from both GSA Schedules A and B as follows:

Schedule A:

1. Rhetorical questions
2. Information questions
3. Leading questions
4. Probing questions

TABLE V

INTER-OBSERVER RELIABILITY

COEFFICIENTS FOR POST-TEST VTR's

Tape No.	Schedule	Scott's Coefficient	Schedule	Scott's Coefficient
001	A	.89	B	1.00
002	A	.92	B	1.00
003	A	.75	B	1.00
004	A	.83	B	.91
005	A	.80	B	1.00
006	A	.96	B	.88
007	A	1.00	B	1.00
008	A	.93	B	.93
009	A	.88	B	1.00
010	A	.89	B	.93
011	A	1.00	B	1.00
012	A	.88	B	1.00
013	A	.91	B	1.00
014	A	.91	B	1.00
015	A	.73	B	.95
016	A	.69	B	.94
017	A	.95	B	.92
018	A	.95	B	.95
019	A	.94	B	.76
020	A	.88	B	1.00

TABLE VI

SELECTED INTRA-OBSERVER RELIABILITY COEFFICIENTS FOR OBSERVERS 'A' AND 'B'

Tape No.	Schedule	Observer	Scott's Coefficient
007 (pre-)	A	A	.87
014 (post-)	B	A	.84
009 (pre-)	A	B	.94
019 (post-)	B	B	.97

5. Question Index $\frac{l + p}{i + l}$

Schedule B:

6. Closure responses
7. Sustaining responses
8. Extending responses
9. Response Index $\frac{s + e}{c + s}$

Schedule A and B:

10. General Index $\frac{l + p}{i + l} + \frac{s + e}{c + s}$
11. Verbal Rewards (Schedule B)

Attitude Data. A factor analysis was completed using one hundred fifty-four PD/AD students registered at the Faculty of Education in either the elementary or the secondary programs. Three dimensions were uncovered and used to test the research hypotheses together with the scores on the total *MTAI* - a total of four criterion variables. The criterion variables were derived from the pre-test administration of the *MTAI* in testing the third hypothesis, while both pre- and post-test scores were used to test the second hypothesis.

Analysis of the Data

Dependent Variables. Dependent variables used in the study were of two kinds: (1) the eleven criterion variables derived from the *GSA* schedules were used to test hypotheses 1 and 3; (2) the four *MTAI* scores, total and dimensional, served as dependent variables in testing hypotheses 2 and 3.

Independent Variable. The independent variable in the present study was the Guided Self-Analysis program to which the experimental group was exposed during the treatment period.

Statistical Procedures

Dimensions of the MTAI. A factor analysis of the MTAI was completed using the D.E.R.S. Program entitled "Factor Analysis Using Hotelling's Method" (Fact 03). The program is recommended for use with large data matrices required when using a test with 150 items like the MTAI. Fact 03 provides both an unrotated factor matrix, as well as a Varimax rotation.

Testing Hypotheses. To test hypotheses 1.0 and 2.0 (p. 39,40) it was necessary first to test for initial differences between the groups on each of the criterion variables, both attitude and verbal behavior. A t-test program (Anov 10) was used. Both hypotheses were then tested by means of the same t-test program, using the change scores for both the verbal behavior and attitude variables. Where initial significant differences existed, an analysis of covariance (Ancov 10) was used.

The final hypothesis, 3.0, was tested by completing a series of rank-order correlation coefficients between initial scores on the MTAI dimensions and the eleven verbal behavior variables in the GSA program.

CHAPTER IV

FACTOR ANALYSIS OF THE MTAI

An extensive review of the literature related to the experimental use of the MTAI with pre-service and in-service teachers has raised a number of questions about the instrument. "Among the questions posed are: What psychological factors do the attitudes represent? To what extent are the results due to response sets? How liable is the Inventory to faking? (Gage, 1963, p. 517)."

A large number of studies have attempted to measure the extent of attitude change over a period of time during which some sort of treatment has been administered to the experimental subjects. The MTAI, a test comprised of 150 items, yielded only a single score, and more often than not, significant differences were not obtained in research studies. The belief that the MTAI was comprised of a number of factors, rather than just one, prompted certain researchers to analyze the items by factor analytic or other means (Campbell, 1967; Horn and Morrison, 1965; Yee and Fruchter, 1971). A number of researchers who were unable to report significant differences when the single, total score was used, did report significant differences on dimensional or factor scores (Nichol, 1968; Smith, 1969). Both these studies used the five factors isolated by Campbell in 1967 who had contended that the MTAI did not measure a single, generalized attitude involving two extremes - 'democratic' at one end and 'autocratic' at the other end.

Prompted by these earlier investigations, the present study concerned itself with completing a factor analysis of the MTAI with 154 education students at the University of Alberta.

Earlier Analyses

Campbell (1967) identified five dimensions within the MTAI by examining and categorizing each item. From the 150 items, he assigned ninety items to five different factors or dimensions which he then labelled (Appendix C). Both Nichol (1968) and Smith (1969) incorporated Campbell's dimensions into their studies and reported significant findings (see Chapter II).

Horn and Morrison (1965) had earlier addressed themselves to the same problem and stated that from a theoretical point of view "more than one dimension is necessary to describe the ways in which teachers orient to a classroom situation (p. 118)." They selected a sample of 306 subjects, of whom 226 were education students at the University of Denver and the remaining 80 were education students at West Texas State University. The empirical scoring key, developed by the authors of the MTAI (Cook et al, 1951) and criticized by Gage (1963a), was discarded. Instead, values ranging from 1 to 5 for each of the 150 responses were used, the higher values being assigned to responses related to 'anti-democratic' or 'autocratic' attitudes. Five factors were isolated and identified (Appendix C).

Yee and Fruchter (1971) conducted a similar investigation using in-service rather than pre-service teachers. They used 368 subjects, all of whom were intermediate grade teachers. The responses were scored using a new logical scoring key developed by Yee and Kriewall (1969). Scores ranged from a most favorable response to a least favorable response, i.e., +2, +1, 0, -1, -2. Varimax rotated solutions were specified for 8, 7, 6, 5, and 4 factors, and examination indicated that the five factor rotation produced the most suitable solution (Appendix C).

The Present Study

The 154 sets of responses to the MTAI used in the present study were scored using a logical scoring key similar to the one adopted by Horn and Morrison (1965). Values ranging from 5 through 1 were assigned to each item, the higher value being assigned from the 'strongly agree' or the 'strongly disagree' position depending upon its relation to 'democratic' or 'non-democratic' attitudes, e.g.,

19. Pupils have it too easy in the modern world.

strongly agree	agree	undecided	disagree	strongly disagree
(1)	(2)	(3)	(4)	(5)

1. Most children are obedient.

strongly agree	agree	undecided	disagree	strongly disagree
(5)	(4)	(3)	(2)	(1)

The factor analysis was completed using the "Fact 03" program designed specifically for use with large data matrices required for tests like the MTAI (150 items). Varimax rotations for 7, 6, 5, 4, 3 factors were specified. The best solution possible appeared to result when the first three factors from a Varimax rotation calling for five factors were considered. A factor loading cutoff point of

.45 was used to eliminate items loading on more than one factor. The .45 cutoff point left the fourth factor with only one item (#103) and the fifth factor with only two items (#4 and #98). Thus, it was decided not to consider labelling and using either of them in the study.

Table VII includes eigen values, percent of common variance, and percent of total variance for each of the five factors resulting from the varimax rotation.

The factors are described in Tables VIII, IX, and X. Examination of the items resulted in the three factors being labelled as follows:

Factor I - The Importance of Discipline and Control in the Education of Children

Factor II - Concern or Lack of Concern for the Needs and Interests of Children

Factor III - Favorable versus Unfavorable Opinions about Children

Factor I -

The Importance of Discipline and Control in the Education ~~of~~ Children

This factor had 31 items with positive factor loadings ranging from .45 to .66. Of the 31 statements, three were framed in positive language (#11, 15, 93) while the rest (28) were negative or critical statements. The MTAI is a combination of both positive and negative statements. Agreement with a positive statement and disagreement with negative items yield higher scores than the reverse procedure. The

TABLE VII

VARIMAX ROTATION FOR FIVE FACTORS

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Eigen values	15.904	12.419	8.028	5.781	5.033
Percent of Common Variance	33.720	26.331	17.022	12.256	10.670
Percent of Total Variance	10.603	8.279	5.352	3.854	3.355

TABLE VIII

FACTOR I. (Bailey)
THE IMPORTANCE OF DISCIPLINE AND CONTROL IN THE EDUCATION OF CHILDREN

Factor Loading	Item Number	MTAI Statement
.66	86	If a child wants to speak or to leave his seat during the class period, he should always get permission from the teacher.
.63	50	Teachers should exercise more authority over their pupils than they do.
.61	35	Discipline in the modern school is not as strict as it should be.
.61	84	A teacher should not tolerate use of slang expressions by his pupils.
.60	126	Children today are given too much freedom.
.57	47	The child must learn that "teacher knows best".
.57	72	Pupils must learn to respect teachers if for no other reason than that they are teachers.
.56	13	The first lesson a child needs to learn is to obey the teacher without hesitation.
.56	109	Young people nowadays are too frivolous.
.56	115	Classroom rules and regulations must be considered inviolable.
.55	80	Children nowadays are allowed too much freedom in school.
.55	85	The child who misbehaves should be made to feel guilty and ashamed of himself.
.54	15	There is too great an emphasis upon "keeping order" in the classroom.
.54	95	Children should not expect talking privileges when adults wish to speak.
.54	118	A pupil found writing obscene notes should be severely punished.
.53	27	A child should be taught to obey the adult without question.
.53	49	A teacher should not be expected to be sympathetic towards truants.
.53	57	Many teachers are not severe enough in their dealings with pupils.
.53	76	There is too much leniency today in the handling of children.

TABLE VIII (continued)

Factor Loading	Item Numbers	MTAI Statement
.53	121	It isn't practicable to base school work upon children's interests.
.52	56	At times it is necessary that the whole class suffer when the teacher is unable to identify the culprit.
.51	102	Whispering should not be tolerated.
.51	108	"Lack of application" is probably one of the most frequent causes for failure.
.50	64	The school is often to blame in cases of truancy.
.49	19	Pupils have it too easy in the modern school.
.49	75	No child should rebel against authority.
.49	110	As a rule teachers are too lenient with their pupils.
.47	82	Universal promotion of pupils lowers achievement standards.
.46	11	Unquestioning obedience in a child is not desirable.
.46	93	Children should be given more freedom in the class than they usually get.
.45	52	The low achiever probably is not working hard enough and applying himself.

TABLE IX

FACTOR II. (Bailey)

CONCERN OR LACK OF CONCERN FOR THE NEEDS AND INTERESTS OF CHILDREN

Factor Loading	Item Number	MTAI Statement
.65	144	Teachers can be in the wrong as well as pupils.
.62	129	A child who bites his nails needs to be shamed.
.62	132	Children just cannot be trusted.
.61	145	Young people today are just as good as those of the past generation.
.59	119	A teacher seldom finds children really enjoyable.
.59	147	A pupil has the right to disagree openly with his teachers.
.59	149	One should not expect pupils to enjoy school.
.57	124	Children are usually too inquisitive.
.55	122	It is difficult to understand why some children want to come to school too early in the morning before opening time.
.55	131	There is no excuse for the extreme sensitivity of some children.
.54	99	Children have no business asking questions about sex.
.52	133	Children should be given reasons for the restrictions placed upon them.
.51	134	Most pupils are not interested in learning.
.51	135	It is usually the uninteresting and difficult subjects that will do the pupil the most good.
.49	71	Children should be allowed more freedom in their execution of learning activities.
.48	137	There is too much intermingling of the sexes in extra-curricular activities.
.47	58	Children "should be seen and not heard".

TABLE X

FACTOR III. (Bailey)

FAVORABLE VERSUS UNFAVORABLE OPINIONS ABOUT CHILDREN

Factor Loading	Item Number	MTAI Statement
.60	24	Too many children nowadays are allowed to have their own way.
.54	116	Most pupils have too easy a time of it and do not learn to do real work.
.52	61	Children are usually too sociable in the classroom.
.47	23	Most children do not make an adequate effort to prepare their lessons.
.47	63	Too much nonsense goes on in many classrooms these days.
.45	36	Most pupils lack productive imagination.
.45	79	Children usually have a hard time following instructions.

loading on this factor, whether positive or negative, are largely concerned with discipline or control - a central preoccupation of teachers who see the school as a custodial institution charged with the education of an essentially unresponsive clientele. The factor appears to epitomize the traditionalism vs progressivism syndrome.

Factor II -

Concern or Lack of Concern for the Needs and Interests of Children

This factor consisted of 17 items with positive factor loadings ranging from .47 to .65. Five items were indicative of a progressive orientation (#71, 133, 144, 145, 147) and the remainder could be described as evidencing a traditional bias. The majority of the items seemed to be related more to pupil needs and interests than to discipline.

Factor III -

Favorable versus Unfavorable Opinions about Children

The 7 items in this factor had positive loadings ranging from .45 to .60. All statements were phrased in negative terms. The thrust of the factor was to provide a basis for indicating favorable or unfavorable opinions about children. The content of the items highlighted inadequacies in children, rather than emphasizing concern for discipline or control, needs or interests.

Similarity Among the Factors

All four investigations produced similarities among the factors isolated.

Factor One from the present study shared fifteen of its thirty-one items with comparable factors from the other studies (see Table XI). Factor Two shared eleven of seventeen items with factors from the other studies (see Table XII). The third Factor was unique from the other studies in that no items were common, although the other studies did share items (see Table XIII).

An examination of the first three factors in the Horn and Morrison (1965) and the Yee and Fruchter (1971) studies indicated that each of the three factors were related to a kind of 'traditionalism' described by Kerlinger (1967). The other two factors in both studies seemed to fit into Kerlinger's 'progressivism' dimension. Kerlinger hypothesized that educational attitudes consisted of two basic dimensions rather than the idea that they "form a bipolar continuum (p. 203)." The three factors described in the present study seemed to fit into Kerlinger's first dimension, leaving no factors for inclusion into a second dimension.

The small size of the sample (154) in the present study and the fact that it was drawn from a number of sources, e.g., elementary and secondary programs may have contributed to the inability to isolate five factors.

Horn and Morrison (1965) concluded that "while it may occasionally be useful to speak of the MTAI as measuring a single trait, it will often be necessary to recognize that several largely independent response consistencies are represented by a total score obtained in this device (p. 125)."

TABLE XI

SIMILARITY OF FACTORS
FOR
CAMPBELL, HORN AND MORRISON, YEE AND FRUCHTER, BAILEY
(First Dimension)

	Campbell (F2)	Horn and Morrison (F1)	Yee and Fruchter (F1)	Bailey (F1)
No. of items	19	17	20	31
Common items	13	-	-	13
	15	-	-	15
	-	19	19	19
	-	21	21	-
	-	23	23	-
	-	24	24	-
	35	35	35	35
	-	50	-	50
	-	-	52	52
	-	57	-	57
	-	63	63	-
	-	65	65	-
	-	-	75	75
	-	76	76	76
	-	80	80	80
	-	92	92	-
	102	-	-	102
	104	104	-	-
	-	-	109	109
	110	110	110	-
	-	116	116	-
	118	-	-	118
	-	126	126	126

TABLE XII

SIMILARITY OF FACTORS FOR CAMPBELL, HORN AND MORRISON, YEE AND FRUCHTER, BAILEY (Second Dimension)

	Campbell (F3)	Horn and Morrison (F2)	Yee and Fruchter (F2)	Bailey (F2)
No. of items	18	23	15	17
Common items	-	-	99	99
	-	119	119	119
	122	-	-	122
	-	124	124	124
	131	-	131	131
	128	128	-	-
	-	132	132	132
	-	-	133	133
	-	134	134	134
	-	-	137	137
	-	-	144	144
	-	-	149	149

TABLE XIII

SIMILARITY OF FACTORS
FOR
CAMPBELL, HORN AND MORRISON, YEE AND FRUCHTER, BAILEY
(Third Dimension)

	Campbell (F1)	Horn and Morrison (F3)	Yee and Fruchter (F3)	Bailey (F3)
No. of items	14	22	12	7
Common items	-	13	13	-
	47	47	47	-
	72	72	72	-
	-	85	85	-
	-	88	88	-
	-	103	103	-
	-	115	115	-
	-	129	129	-

Yee and Fruchter (1971) indicated that "the MTAI continues to be a popular research and screening tool, and the factors found in the study provide opportunity for greater specificity in considering teacher attitudes (p. 131)."

The present analysis of the MTAI has generated three dimensions or factors in addition to the total MTAI score, whose construct validity has been described as uncertain. The hypotheses could then be tested using four variables rather than one.

CHAPTER V

PRESENTATION AND ANALYSIS OF THE DATA

The present study examined the effects of Guided Self-Analysis on the verbal teaching behaviors and attitudes of a number of student teachers. The chapter is divided into two sections: (1) the presentation and analysis of the statistical data; (2) the presentation and analysis of data from other sources.

Statistical Findings and Analysis

Risk Level. An alpha level of 0.05 was selected to test the three research hypotheses contained in the present study.

> Hypothesis 1.0. There will be no significant differences between the verbal teaching behaviors of student teachers trained in the use of certain Guided Self-Analysis schedules and those of student teachers not so trained.

In order to test for initial differences between the groups on the eleven verbal behaviors, a series of t-tests was completed. A significant initial difference at the .003 level was reported for the category labelled Extending Responses (Table XIV). Since both the Response Index and the General Index of Interaction included Extending Responses as an integral component, it was decided to test the hypothesis for all three variables using an analysis of covariance program (ANCOV 10). The other eight variables were tested by means of a series of t-tests (ANOV 10). Results for the eleven variables are reported in Tables XV and XVI.

Significant differences between the experimental and the control

TABLE XIV

T-TESTS BETWEEN PRE-TEST SCORES FOR EXPERIMENTAL AND CONTROL GROUPS ON ELEVEN (11) VERBAL BEHAVIOR VARIABLES

	Experimental Mean	Control Mean	Experimental St.Dev.	Control St.Dev.	DF	t	p
Rhetorical Questions	6.50	7.62	4.58	5.60	18	-0.49	.62
Information Questions	70.25	58.25	13.45	20.28	18	1.59	.12
Leading Questiong	15.33	27.62	15.17	19.03	18	-1.60	.12
Probing Questions	7.58	5.62	8.60	5.45	18	0.57	.57
Question Index	271.92	391.50	173.12	266.87	18	-1.22	.23
Closure Responses	76.75	71.75	11.30	12.45	18	0.93	.36
Sustaining Responses	22.42	19.50	10.27	8.54	18	0.66	.51
Extending Responses	0.83	8.75	1.59	7.98	18	-3.38	.003*
Response Index	235.75	292.25	118.30	194.71	18	-0.81	.42
General Index	507.67	696.25	229.43	402.66	18	-1.33	.19
Verbal Rewards	18.83	18.62	13.68	10.82	18	0.03	.97

*$p < .05$

TABLE XV

COMPARISON OF PRE- TO POST-MEAN DIFFERENCE SCORES BETWEEN THE EXPERIMENTAL AND CONTROL GROUP ON THREE (3) OF ELEVEN (11) MEASURES OF VERBAL BEHAVIOR

Criterion	Source	DF	MS	ADJ.F.	P
Extending Responses	Group	1	31.60	3.23	.09
	Within	17	9.78		
Response Index	Group	1	86193.38	4.62	.05*
	Within	17	18671.64		
General Index of Interaction	Group	1	1578661.00	15.35	.001*
	Within	17	102817.56		

*$p < .05$

TABLE XVI

COMPARISON OF PRE- TO POST-MEAN DIFFERENCE SCORES BETWEEN THE EXPERIMENTAL AND CONTROL GROUP ON EIGHT (8) MEASURES OF VERBAL BEHAVIOR

Measures	Experimental Mean Difference	S.D.	Control Mean Difference	S.D.	t	p
Rhetorical Questions	-1.25	4.85	-4.00	6.44	1.09	.29
Information Questions	-20.67	23.36	20.75	22.21	-3.96	.0009*
Leading Questions	7.83	12.92	-15.00	22.32	2.90	.0009*
Probing Questions	14.42	15.58	-0.88	7.72	2.55	.02*
Question Index	397.25	396.62	-197.12	306.82	3.57	.002*
Closure Responses	-6.58	16.05	9.00	12.22	-2.32	.03*
Sustaining Responses	2.75	14.01	-0.88	8.17	0.65	[illegible]
Verbal Rewards	-1.42	15.85	-3.62	11.66	0.33	[illegible]

*p<.05

group were revealed for seven of the eleven variables. In every instance the significant difference favored the experimental group. Hypothesis 1.0 was accepted for Rhetorical Questions, Sustaining Responses, Verbal Rewards, Extending Responses; and rejected for Response Index, General Index of Interaction, Information Questions, Leading Questions, Probing Questions, Question Index, Closure Responses.

Discussion

The experimental group, trained in the use of GSA Schedule A, were significantly different from the untrained control group at the conclusion of the project on four of the five question variables. The experimental group decreased its use of Information questions while the control group increased its use of that type of question. In general, student teachers tend to use a high proportion of Information questions in which pupils merely regurgitate information provided earlier by the student teacher or drawn from their own experience. For a learning encounter to remain on such a level and not move to more complex modes of thinking, may be unproductive on a habitual basis. The teacher, aware of a hierarchy among the types of questions must structure his questions in related sequences in an attempt to induce the pupil to higher forms of thinking. GSA must not be seen merely as a method of increasing and decreasing types of questions used in a quantitative sense only. The sequences must be carefully related to achieve the stated objectives of the program.

Experimental subjects increased their use of Probing and Leading questions significantly (Table XVI). The Question Index which shows an overall relationship between 'lower' and 'higher' forms of questioning improved significantly for the experimental group. It would appear that use of Schedule A by the experimental subjects was a rather successful method of modifying their verbal questioning behavior in 'desirable' directions. Those without training tended to continue using Information questions throughout the lessons and ignored the more sophisticated types altogether. Indeed, they increased their use of Information questions and decreased their use of Leading and Probing questions. The Question Index for the control group also dropped over the treatment period.

The basic response variables included in Schedule B are Closure responses, Extending responses and Sustaining responses. As in Schedule A, an index is used to characterize the overall relationship between 'closing' and 'extending' response patterns. Schedule B variables are related to those of Schedule A in that a teacher-pupil interaction sequence contains teacher questions and teacher responses. For a teacher to move the pupil to higher levels of thinking by his questions, he must be prepared to sustain and extend the dialogue by means of appropriate responses. To close off the pupil after a single information type exchange, breaks the sequence with that pupil. The teacher should attempt to continue the dialogue by using Sustaining and Extending responses, Leading and Probing questions.

The experimental subjects reduced their use of Closure responses significantly (Table XVI). They increased their use of Sustaining and Extending responses, but not significantly (Table XV, XVI). The large decrease in Closure responses accounted for the significant improvement in the Response Index for the experimental group. Schedule B did not have as much measurable effect on the verbal behaviors of the experimental subjects as was evident in Schedule A.

The relative lack of success with Schedule B may have resulted from the students' unfamiliarity with the implications of response behavior as opposed to their knowledge of the importance of variety in questioning behavior. They appeared quite perplexed by directives encouraging them to sustain and extend pupils through their responses. They seemed convinced that the best lesson is characterized by scattering questions across a group of pupils like buckshot. While they were prepared to alter the cognitive complexity of their questions, they were loathe to remain with one student long enough to complete a total sequence. To do otherwise may have been considered 'undemocratic'.

The General Index of Interaction (GII) which combined the Question and Response indices in this study showed a significant difference ($p < .001$) at the conclusion of the project in favor of the experimental group (Table XV). The General Index of Interaction (GII), as well as the two other indices (Question Index and Response Index) are useful in GSA training because they provide gross measures which serve to characterize overall behavior for the individual using the program. They also tend to emphasize the importance of keeping the variables together in an interactional relationship so that those using the program do not find themselves working on a specific behavior in isolation from the others.

While Verbal Rewards are mentioned in Schedule B of the GSA program, they are not included as integral components of the schedule because they are not viewed as relating to cognitive response procedures but are seen as 'affective' responses more appropriate to other methods of verbal behavior categorizations, such as Flanders'. They were included in this study to examine the effect of a GSA program on the proportion of Verbal Rewards used before and after such training. The results (Table XVI) indicated no significant differences between the groups on this variable.

> Hypothesis 2.0. There will be no significant differences in the attitudes of student teachers trained in the use of certain Guided Self-Analysis schedules and student teachers not so trained.

In order to test for initial differences between the groups on each of the four criterion attitude variables, a series of t-tests was completed. No significant differences were revealed (Table XVII).

The test of hypothesis 2.0 was completed then by using a series of t-tests (ANOV 10). Hypothesis 2.0 was accepted on three attitude variables. Total MTAI, Bailey Factor 1 and Bailey Factor 2. It was rejected for the fourth variable (P<.02) Bailey Factor 3 (Table XVIII).

Discussion

The experimental group changed significantly on one of the attitude variables used in the study. Favorable Versus Unfavorable Opinions About Children, Bailey Factor 3, comprised seven items none of which appeared in any of the factors isolated by other investigators (see Chapter IV). The data showed an increase on the

TABLE XVII

T-TESTS BETWEEN PRE-TEST SCORES FOR EXPERIMENTAL AND CONTROL GROUPS ON FOUR (4) ATTITUDE VARIABLES

Variable	X Mean	C Mean	X St.Dev.	C St.Dev.	DF	t	p
1 Total MTAI	63.58	66.50	18.69	24.24	18	-0.30	.76
2 Bailey Factor 1	24.67	25.87	3.70	3.83	18	-0.70	.48
3 Bailey Factor 2	11.42	7.25	6.44	5.85	18	1.46	.15
4 Bailey Factor 3	8.92	10.12	1.68	1.89	18	-1.50	.15

$^{*}p < .05$

TABLE XVIII

COMPARISON OF PRE- TO POST-DIFFERENCE SCORES BETWEEN THE EXPERIMENTAL AND CONTROL GROUP ON FOUR (4) ATTITUDE VARIABLES

Measures	Experimental Grp. Mean Difference	S.D.	Control Grp. Mean Difference	S.D.	t	p
1 Total MTAI	9.33	21.81	-7.75	15.46	1.91	.07
2 Bailey Factor 1	-1.00	4.67	-4.12	4.85	1.44	.16
3 Bailey Factor 2	0.58	4.19	1.50	5.10	-0.44	.66
4 Bailey Factor 3	0.92	2.02	-1.62	2.56	2.48	.02*

*$p < .05$

variable for the experimental group while a decrease was recorded by the control group. This could be interpreted as a move towards 'democratic' attitudes for the experimental group and as a move towards 'undemocratic' or 'traditional' attitudes for the control group. Each of the items in Factor Three (Table X, p. 79) was couched in terms critical of children. The items in this factor appeared to 'hang together' better than the items in either of the other factors (Tables VIII, IX, p. 76-78).

A number of factors may have contributed to such a difference between the groups on this attitude variable. First, the GSA program may have provided a structure that not only helped them modify their verbal behaviors but also tended to make them more tolerant and understanding of children as well. To achieve a measure of control over one's linguistic behavior would certainly tend to add to one's self-confidence. And self-confidence in a teacher tends to reduce tensions between him and the pupils permitting him to relax, become more positive, and enjoy his relations with them.

The school environments in which the project was carried out were more dissimilar than was originally anticipated. The control school did not have a full-time supervising principal. The grade six teacher who doubled as the assistant principal, was in charge on a released-time basis. The principal's office was in the main building across the yard. Of necessity, discipline was entrusted to each teacher and some were more strict than others. The student teachers assigned to the control school experienced more problems with discipline than their counterparts in the experimental school. This fact may have accounted for an obvious deterioration in ~~the~~ attitudes over the treatment period, as evidence by their post-test MTAI scores and by their personal comments in the Log Books and in the taped interviews. One particular control student experienced considerable difficulty in controlling his pupils and had a number of clashes with the cooperating teacher. His unhappy experiences were constantly communicated to the other students, many of whom became somewhat discouraged.

The experimental school, on the other hand, was housed in a single building with a resident, full-time principal assisted by a released-time assistant principal. Discipline both in and out of the classrooms was more uniform and this had the effect of diminishing the student teachers' anxieties with reference to pupil control.

Future studies should take into account the effects of differing environments on student teacher performance and attitudes by taking the necessary steps to control these variables. A plan to assign part of the experimental group and part of the control group to each school had to be abandoned due to a lack of videotape equipment.

It is also likely that the control students were aware of their role in the project since they knew that a second group was using a GSA program at the same time.

The short duration of the project may have also been a factor that prevented greater attitude changes from occurring. A year-long project linked with a course component in GSA techniques would have been more appropriate.

> Hypothesis 3.0. There will be no significant positive relationships between initial attitude scores and verbal behavior change scores.

In order to test this hypothesis the experimental subjects were ranked on (1) the initial scores on the four attitude variables: Total MTAI, Bailey's Factor One, Two, and Three; and (2) the change scores on each of the eleven verbal behavior variables. Each attitude variable was compared by means of series of rank-correlations, to the eleven verbal behavior variables (Tables XIX, XX, XXI, XXII).

Since none of the correlations was significant at the .05 level, the hypothesis was upheld.

Discussion

While none of the correlations was significant, it was noted that (1) most correlations related to Questioning techniques were negative, and (2) most correlations related to Response techniques were positive. In Table XIX, where the MTAI total score was compared with the eleven verbal behavior variables, positive correlations of .57, .35, .52, .54, and .14 were recorded for Closure responses, Sustaining responses, Extending responses, Response Index, and General Index (which includes a Response component). Negative correlations of .21, .32, .24, .02, .29, were recorded for Rhetorical questions, Information questions, Leading questions, Probing questions, and Question Index. A similar pattern was exhibited, with

TABLE XIX

RELATIONSHIP BETWEEN THE INITIAL ATTITUDE SCORES (TOTAL MTAI) AND VERBAL BEHAVIOR CHANGES FOR THE EXPERIMENTAL GROUP

Verbal Behavior Variable	Spearman r
Rhetorical Questions	-.21
Information Questions	-.32
Leading Questions	-.24
Probing Questions	-.02
Question Index	-.29
Closure Responses	+.57
Sustaining Responses	+.35
Extending Responses	+.52
Response Index	+.54
General Index of Interaction	+.14
Verbal Rewards	-.26

None of the correlations was
significant at the .05 level

TABLE XX

RELATIONSHIP BETWEEN THE INITIAL ATTITUDE SCORES (FACTOR ONE) AND VERBAL BEHAVIOR CHANGES FOR THE EXPERIMENTAL GROUP

Verbal Behavior Variable	Spearman r
Rhetorical Questions	-.55
Information Questions	-.19
Leading Questions	-.07
Probing Questions	-.12
Question Index	-.23
Closure Responses	+.30
Sustaining Responses	-.26
Extending Responses	+.30
Response Index	+.33
General Index of Interaction	+.04
Verbal Rewards	-.03

None of the correlations was
significant at the .05 level

TABLE XXI

RELATIONSHIP BETWEEN THE INITIAL ATTITUDE SCORES (FACTOR TWO) AND VERBAL BEHAVIOR CHANGES FOR THE EXPERIMENTAL GROUP

Verbal Behavior Variable	Spearman r
Rhetorical Questions	-.24
Information Questions	-.03
Leading Questions	-.06
Probing Questions	+.12
Question Index	.00
Closure Responses	+.38
Sustaining Responses	+.09
Extending Responses	+.28
Response Index	+.41
General Index of Interaction	+.02
Verbal Rewards	-.19

None of the correlations was significant at the .05 level

TABLE XXII

RELATIONSHIP BETWEEN THE INITIAL ATTITUDE SCORES (FACTOR THREE) AND VERBAL BEHAVIOR CHANGES FOR THE EXPERIMENTAL GROUP

Verbal Behavior Variable	Spearman r
Rhetorical Questions	+.30
Information Questions	+.05
Leading Questions	-.01
Probing Questions	+.09
Question Index	-.03
Closure Responses	+.03
Sustaining Responses	+.22
Extending Responses	-.08
Response Index	-.08
General Index of Interaction	+.23
Verbal Rewards	-.17

None of the correlations was
significant at the .05 level

some exceptions, on the three other sets of correlations. Had these correlations been significant at the .05 level, it would have indicated the possibility that knowledge of how an individual performed on an attitude score (*MTAI*) would yield information on how he could be expected to modify his behavior in a *GSA* program. The fact that the correlations for Schedule A were negative and for Schedule B were positive, posed a further problem. Was the variable content of Schedule A more cognitive and of Schedule B more affective? Perhaps the high attitude individual would tend to be more supportive of pupils and not cut them off as much (closure), thus opening up the possibility for an increase in sustaining and extending responses. For example, Subject 002, who ranked low on three of the four attitude variables, also ranked low on the response variables (Table XXIII). An examination of Table XXIII suggests that subjects who ranked high on the *MTAI* did not necessarily rank high (or low) on the verbal behavior variables.

While the data were not significant statistically, further investigation of the pattern should be undertaken.

Summary of Statistical Findings

Hypothesis 1.0 was designed to test the effectiveness of two schedules (A, B) from the *GSA* program on the question-response behavior of student teachers. Significant differences (Tables XV, XVI) between the trained experimental group and the untrained control group were reported on seven of 11 variables. Experimental subjects

TABLE XXIII

RANKS ON INITIAL ATTITUDE SCORES AND ON VERBAL BEHAVIOR CHANGE SCORES FOR EXPERIMENTAL SUBJECTS

Subjects	001	002	003	004	005	006	007	008	009	010	011	012
MTAI Total	3	11	12	6	5	8	9	2	7	10	1	4
Factor One	1	7.5	10	3	7.5	2	12	4.5	7.5	11	7.5	4.5
Factor Two	4	9	10.5	12	6.5	10.5	8	6.5	5	3	2	1
Factor Three	8	2.5	5.5	2.5	2.5	5.5	8	2.5	11	11	8	11
Rhetorical Questions	6.5	1.5	10	1.5	4.5	3	11	12	9	4.5	8	6.5
Information Questions	11	4	7	2	3	9	5	12	7	6	10	1
Leading Questions	12	8	4	2.5	2.5	7	10	11	6	5	9	1
Probing Questions	6	2.5	11.5	5	4	11.5	1	8	9	7	10	2.5
Question Index	7	4	9	5	3	10	1	11	8	6	12	2
Closure Responses	4	9	6	11	2.5	5	8	7	10	12	1	2.5
Sustaining Responses	7	8	3	11	3	3	10	6	9	12	1	5
Extending Responses	1	9	9	6	5	7	2.5	9	12	11	2.5	4
Response Index	3	9	6	11	4	5	7	8	10	12	1	2
General Index of Interaction	6	4	8	5	3	10	2	9	11	12	7	1
Verbal Rewards	5.5	7	9	3.5	11	2	1	12	10	3.5	5.5	8

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achieved better results with Schedule A on questioning behavior than on Schedule B which was concerned with response behavior.

Hypothesis 2.0 was designed to measure the extent of attitude change, as measured by the MTAI, in the GSA trained experimental subjects (Table XVIII). Of the four attitude variables used, a significant difference in favor of the experimental group was reported for one - Bailey Factor 3. Examination of the data indicated that the significant difference was due as much to a decrease in scores for the control group as to an increase in scores for the experimental group.

Hypothesis 3.0 was designed to examine the relationships between initial MTAI scores and verbal behavior change scores. No significant correlations were reported. (Tables XIX, XX, XXI, XXII). It was noted, however, that the correlations between attitudes and questioning behavior were generally negative, while the correlations between attitudes and response behaviors were, for the most part, positive.

Data from Other Sources

In order to supplement the statistical data collected throughout the project, it was decided to gather relevant information in a number of other ways. First, a General Questionnaire was administered to all experimental and control subjects at the conclusion of the project. Second, a GSA Questionnaire was administered to the experimental subjects only. Third, each participant was encouraged to keep a Log Book where day-by-day impressions and reactions could be recorded. Fourth, each experimental subject was asked to turn in the sets of "used" work sheets from the <ins>GSA</ins> schedules. Finally, a half-hour interview was taped with each participant to sum up his general reactions to the experience. Appendix B includes a copy of each of the questionnaires. A number of <ins>Student Profiles</ins> have been included based upon the data assembled during the entire project, both statistical and non-statistical.

<ins>General Questionnaire</ins>. This instrument was designed to elicit student/teacher reaction to a wide range of topics related to the teacher education program in general, and their student teaching experiences in particular. Since the project under study was seen as a component of the entire eight-month PD/AD program, it was felt important to examine student opinions of and attitudes toward the rest of the components.

The questionnaire consisted of two parts: Part A included 18 statements designed to elicit student reaction to a number of things, such as the cooperating school and staff, the cooperating teacher, the faculty consultant, discipline in the classroom, the PD/AD program. They were expected to respond in the following manner: (1) strongly agree; (2) agree; (3) disagree; (4) strongly disagree. Space was provided for each item to permit the respondent to modify his response. Part B included three open-ended questions designed to solicit student opinion and participation in monitoring the PD/AD program. The respondent was asked to list the three <ins>least</ins> and <ins>most</ins> valuable activities in the program, and to make three specific recommendations for improvements.

<ins>Part A</ins>. Responses to these items were collapsed into two categories,--<ins>agree</ins> and <ins>disagree</ins>, and were recorded for the total group,

the experimental sub-group and the control sub-group (Table XXIV).

Discussion

Item 1: Two half-days per week were inadequate for the purposes of this project.

About 2/3 of the participants agreed with this item. Comments indicated that continuity was lacking in their assigned teaching tasks due to the Wednesday gap between the two teaching days. It would have been preferable to schedule two successive half-days, according to the students.

Item 2: These activities better prepared me to assume full control of the class in March.

Most students agreed that the student teaching experiences in January and February better prepared them for the final three-week round in March. The experimental group were more positive in their assessment of these activities than the control group, however.

Item 3: There was a good working relationship between the student teachers and the school staff.

There was general agreement that the student teachers established a good working relationship with the staffs of the cooperating schools.

Item 4: Student teaching activities were well organized by the school staff.

Student teachers were high in their estimation of the school staff's organization of student teaching activities.

TABLE XXIV

GENERAL QUESTIONNAIRE (PART A)
COMPARISON OF THREE GROUPS - TOTAL, EXPERIMENTAL AND CONTROL - BY PERCENT OF AGREEMENT AND DISAGREEMENT

	Total Group %		Experimental Group &		Control Group &	
	Agree	Disagree	Agree	Disagree	Agree	Disagree
1.	65	35	66	34	70	30
2.	85	15	100	00	65	35
3.	90	10	92	08	88	12
4.	95	05	92	08	100	00
5.	15	85	16	84	15	85
6.	05	95	08	92	00	100
7.	60	40	67	33	40	60
8.	85	15	92	08	75	25
9.	75	25	80	20	67	33
10.	45	55	08	92	100	00
11.	90	10	100	00	90	10
12.	70	30	67	33	75	25
13.	60	40	67	33	50	50
14.	60	40	80	20	50	50
15.	85	15	90	10	85	15
16.	60	40	65	35	50	50
17.	35	65	50	50	15	85
18.	40	60	45	55	35	63

Item 5 and Item 6: The cooperating teacher over-supervised the student teacher. Student teachers were given too many responsibilities by the cooperating teacher.

Student teachers did not agree that they had been over-supervised by their cooperating teachers, nor did they feel that they had been given too many responsibilities too early.

Item 7: The cooperating teacher was an excellent model for the student teacher.

Sixty percent agreed that the cooperating teacher was an excellent model. There was some difference of opinion in the responses of the two sub-groups. Only 40% of the control subjects saw their cooperating teachers as ideal. Perhaps agreement levels would have been higher had a word other than "excellent" been used to qualify "model".

Item 8: The cooperating teacher assisted the student teacher with concrete suggestions.

Students were generally satisfied that the cooperating teachers assisted them with concrete suggestions.

Item 9: The cooperating teacher's evaluation was both fair and accurate.

Three-quarters of them felt that the cooperating teacher's evaluation was fair and accurate. The control group differed somewhat from the experimental group in the extent of their agreement with this statement.

Item 10: Discipline in the cooperating school was a problem. An examination of the total group's response to this item indicated that 45% agreed that discipline was a problem in the cooperating school, while 55% disagreed. A look at the results for the sub-groups indicated an interesting divergence of opinion. The experimental subjects disagreed (92% - 8%) with the statement, while the control subjects agreed (100% - 00%). Obviously the control subjects perceived that discipline was a focal problem for them and that their performance was affected. The researcher would have to concur with the students' assessment. The control school was indeed a much more unstructured environment and offered a far wider range of management problems than did the experimental school. The structure imposed on the student teachers' planning by the GSA schedules may have been responsible, to some extent, for the fact that the experimental group experienced fewer disciplinary problems than the control group during the project.

Item 11: The cooperating teacher should participate in the evaluation of the student teacher.

Both groups generally agreed that the cooperating teacher had a role to play in the evaluation of student teachers.

Item 12: The faculty consultant assisted the student teacher with concrete suggestions.

Although both groups agreed with this statement, a smaller proportion of experimental subjects than control subjects concurred.

Item 13: The faculty consultant did not observe the student teacher often enough.

Student teachers on the whole were split 60-40 on this item. Even those who thought there had been enough visits indicated that these were rather "hit or miss affairs". The experimental students were more critical on this issue than the control students.

Item 14: The faculty consultant had a clear understanding of of the school environment and problems.

Eighty percent of the experimental group agreed that the faculty consultant "had a clear understanding of the school environment and problems" while only 50% of the control group agreed. The control group had difficulty with discipline and were not using GSA, two factors that could have contributed to their more critical attitude towards the faculty consultants.

Item 15: The faculty consultant should participate in the evaluation of student teachers.

Most subjects agreed with the statement, but they were less unanimous than they had been when reacting to the cooperating teacher's role in evaluation (Item 11).

Item 16: The PD/AD program should be extended to 12 or 14 months.

Opinion was split on this item with 65% of the experimental subjects and 50% of the control subjects agreeing. Sixty percent of the combined group agreed with the concept of a longer program.

Item 17: The PD/AD program successfully bridges the gap between "theory" and "practice".

Two out of three students felt that the program did not successfully bridge the "theory/practice" gap. The students are emphasizing, therefore, that the program must not only be longer (Item 16), but that it should be altered considerably.

Item 18: The present program is too demanding of students' time and effort.

Sixty percent of the students did not agree that the program was too demanding. Those who felt that the demands were high often complained that assignments were routine 'busy-work'.

Part B. This section of the General Questionnaire included three open-ended questions as follows:

1. List the three most valuable activities in the PD/AD Program. (Table XXV)
2. List the three least valuable activities in the PD/AD Program. (Table XXVI)
3. Make three specific recommendations for change in the PD/AD Program. (Table XXVII)

This section included the general reactions of all twenty participants to their teacher education program. Distinctions between the experimental group's responses and those of the control

TABLE XXV

GENERAL QUESTIONNAIRE (PART B)
MOST VALUABLE ACTIVITIES IN THE TEACHER EDUCATION PROGRAM AS IDENTIFIED BY EXPERIMENTAL AND CONTROL SUBJECTS

Activity	Selected by Experimentals (/12)	Selected by Controls (/8)
Early Class Observation	5	2
Microteaching	2	3
Student Teaching	6	8
Curriculum Workshops	6	5
GSA Program	6	N/A
Course Work (Various)	5	5

TABLE XXVI

GENERAL QUESTIONNAIRE (PART B) LEAST VALUABLE ACTIVITIES IN THE TEACHER EDUCATION PROGRAM AS IDENTIFIED BY EXPERIMENTAL AND CONTROL SUBJECTS

Activity	Selected by Experimentals (/12)	Selected by Controls (/8)
Ed. C.I. 402-404	6	7
Curriculum Workshops	2	3
Course Assignments	5	1
Course Work (Various)	4	3
Microteaching	2	1

TABLE XXVII

GENERAL QUESTIONNAIRE (PART B)
RECOMMENDATIONS FOR CHANGES IN THE TEACHER EDUCATION PROGRAM AS IDENTIFIED BY EXPERIMENTAL AND CONTROL SUBJECTS

Activity	Selected by Experimentals (/12)	Selected by Controls (/8)
More comprehensive Curriculum Workshops	2	3
Extended Student Teaching Activities	4	5
Guided Self-Analysis	4	N/A

group were noted where wide variation occurred.

Discussion

There was in response to the first question an expected emphasis on the importance of student teaching. Students were quite concerned however, with the quality of such experience and called for careful preparation by the university and the schools. They were very much concerned with establishing criteria for the selection of cooperating teachers and faculty consultants and showed considerable interest in returning to more objective and traditional methods of evaluating student teachers' performance. They were almost unanimous in their rejection of large group instruction situations, preferring the smaller group seminars. They did feel that instructors should be encouraged to teach more and to discuss less, indicating perhaps a growing disillusionment with the current emphasis on group discussion as a central teaching strategy. Students showed considerable interest in activities related to both theory and practice, such as microteaching, GSA, audio-visual techniques and curriculum workshops.

The student teacher's traditional disenchantment with the theoretical aspects of teaching was less pronounced with this group than had been the case with earlier groups polled in a similar manner (Bailey, 1970). Although they called for more student teaching they also recommended extending the length of the program from 8 to 10 or 14 months. The experimental group offered a wider variety of recommendations for improvement than did the control group. They also listed a wider range of "most valuable" components in the first question and a smaller range of "least valuable" aspects of the PD/AD program.

GSA Questionnaire. At the conclusion of the project each experimental subject was asked to complete an open-ended instrument entitled GSA Questionnaire. Twenty-six questions were prepared (see Appendix B) to determine the reactions of the experimental subjects to the various components of the GSA program itself and to a number of other environmental factors.

The general reactions to the GSA program are presented in the present section.

Subjects were virtually unanimous in their belief that the GSA program had helped them to analyze their verbal behavior much more closely. Awareness ranged from a realization that some of them had developed annoying speech habits, such as "uh! uh! uh!" to an understanding of the extreme importance of 'sequencing' in teacher-pupil questioning dialogues.

Most students admitted to certain fears of various elements in the GSA program. The videotaping equipment itself was quite cumbersome and students received only about one hour of instruction prior to the project. However, few felt that the equipment was any real impediment once they and the pupils were used to it. The presence of the VTR equipment and an operator was expected to be quite unsettling to the pupils but in most instances, such was not the case. Children seemed to be affected in the early tapings but as the novelty wore off they virtually ignored the entire production.

The Schedules themselves were rather massive and tended to frustrate the students in the early stages of the project. Schedules could have been simplified by separating the material into a series of identical but shorter booklets.

The students' reactions to the initial self-taping were quite varied. Many of them felt that they tended to dominate the lesson often ignoring the contributions made by pupils. A lack of planning of the questioning strategies was clearly noted by all the students. A number of voice and physical idiosyncracies seemed to impress the students. "I never realized my voice was so high", said one. "I kept playing with my hair. Do I do that all the time?", asked another. "It was awful! I cut them off left and right, didn't I?", commented a third.

The needs of the pupil and the importance of proper planning were emphasized almost universally.

All the students felt that more training prior to such projects would be beneficial. Practice codings were recommended.

The tasks included in each Schedule were considered adequate by all the respondents although most felt that completing them satisfactorily was often onerous. Students found that self-coding was interesting, although one described the activity as frustrating and unrewarding.

Planning for explicit behavior changes as demanded in the final Task for each Schedule presented problems for some. Although it was relatively easy to identify the faults, code them, and develop profiles, the job of determining specific plans for changing certain behaviors was difficult and led to a certain amount of discouragement and annoyance when the planned changes did not materialize in subsequent codings.

Every student indicated a desire to try the GSA program again if the opportunity arose.

Student Profiles

Using data from Table XXIII and Appendix D, as well as from other sources, such as log books, interviews, questionnaires, and worksheets, an attempt has been made to construct a number of profiles that might yield further insights into the types of PD/AD students involved in the GSA project.

Subject 002. This individual ranked low on three of the four attitude scores and it was observed that in the classroom he was always rather brusque, demanding, and strict with the pupils. He clashed early and often with his cooperating teacher whose mode of classroom management was similar to his own. He worked hard at student teaching and GSA but was so critical of his own and the pupils' performance, that improvement in GSA was spotty.

Subject 012. This individual ranked high on three of four attitude variables, and also ranked high on nine of the eleven verbal behaviors. A real showman, he was completely relaxed with the children and they always responded eagerly. Perhaps the loose, confident and empathic student can best benefit from such training programs, since he may be more willing and able to adapt his behaviors.

Subject 005. This student ranked around the middle of the group on the attitude variables, but ranked in the top half on ten of eleven verbal behavior variables. He was a well-motivated, hard worker from a central European background and the first in that family to complete a university degree. Introspective and self-critical, he was still able to maintain a healthy attitude towards the difficulties inherent in such programs.

Subject 003. This subject ranked very low on three of the four attitude variables, but had the largest change in score over the period of the GSA program. His performance on the GSA variables was rather poor, due perhaps to his apparent 'fear' of the children. As the project progressed, he began to relax and his performance might have shown considerable improvement had the program been extended for several more weeks. He did not talk to anyone very much, but his log book was bulging with introspective, witty, and cutting remarks about life in general and the Faculty of Education in particular.

Conclusion. No clear pattern of performance emerged for the experimental group over the treatment period. Each subject was a study by himself, his performance affected by his own personality, by the pupils, the school, the GSA program, and the Faculty of Education.

Summary of Findings from Other Sources

1. The Personal Data Questionnaire was completed by all

prospective participants in the project. It provided much general information on the personal, academic, and work background of each participant. That kind of information helped considerably in understanding and accounting for the behavior of individuals at various stages of the project.

2. The General Questionnaire was designed to elicit the opinions of the participants on a wide variety of topics related to the teacher education program they were then experiencing. The two groups differed in their responses on a number of items. On items 7, 8, 9 related to the cooperating teacher (Table XXIV) the experimental subjects were more positive in their responses than the control subjects. Item 10, related to discipline, indicated a wide divergence of opinion between the groups - only 8% of the experimental group saw it as a problem, while 100% of the control group identified discipline as a problem. Experimental subjects were much more convinced that the PD/AD program bridged the theory-practice gap than their control counterparts.

3. The GSA Questionnaire was used exclusively with the experimental subjects and provided definite insights into the students' difficulties in dealing with such programs. Such feedback also assisted the researcher in analyzing the specific and general reactions of the participants to the GSA program.

4. The half-hour Interview taped with every subject, control and experimental, at the completion of the project was really designed to tie up any loose ends - to give the student and the project

director a chance to discuss general issues in teacher education, their involvement in the project, their plans for the future, and the like. The interview shed further light on the reaction of particular students to the experience they had recently shared and on their responses to the various questionnaires they had completed.

5. The participants, experimental and control, were asked to keep a Log Book in which their experiences and their reactions to them could be recorded. No specific format was given for the subjects to follow but they were urged to be as candid in their comments as they wished. The Logs were turned in at the completion of the project. They proved worthwhile in providing more complete insight into the problems and frustrations the student teachers encountered in the many activities that were associated directly or indirectly with the project.

6. Student Profiles for several of the experimental subjects were written up to draw together data from all sources with a view to bringing the study to a personalized level at some point. Attitudes are held by 'people' and verbal behaviors and their modification depend upon the extent to which 'people' can be taught strategies for change.

Resume of the Findings

Verbal Behaviors. One of the major aims of the study was to determine whether the GSA program could assist student teachers to modify certain verbal behaviors to a significant extent over the treatment period. Students using Schedule A on Questioning strategies were successful in significantly modifying their behavior on four of the five variables: Information Questions, Leading Questions, Probing Questions, and on the Question Index. They also changed significantly on the General Index of Interaction (GII) - a variable derived from both question and response schedules. Significant differences were reported between the groups on Closure Responses, and on the Response Index.

Students reported a renewed interest in and awareness of their use of language in the teaching act. GSA provided a focus for their attempts to improve their individual performances. Without some sort of framework, students tend to concentrate their efforts on very broad areas, like general appearance and manner, classroom management, and planning - areas that are often just too complex to deal with all at once.

Attitudes. A second major goal of the study was to determine whether attitudes, as measured by the MTAI, changed significantly for students who were undergoing training in Guided Self-Analysis. A significant difference between the groups was reported for one of the four attitude variables. The short duration of the project probably had an effect on the outcome as did the limitations of the testing instrument itself and the small size of the sample.

It was noted from the total MTAI scores, pre- to post-, that experimental subjects tended to increase their scores while control subjects tended to decrease their scores. Data gathered from the General Questionnaire indicated that the cooperating schools may have contributed as much to that phenomenon as any other single factor. Every control subject considered 'discipline' a problem, while only one experimental subject rated it as such. Control subjects were generally more critical of their cooperating school, teacher, and faculty consultant then their counterparts in the experimental program. These attitudes may have been due to the fact that the control school was considerably less structured than the experimental school, as earlier noted.

A third major goal was to investigate the predictive validity of the MTAI. To what extent were attitude scores related to behavior change? Had significant positive correlations been reported in the test of hypothesis 3.0, the MTAI could then have been deemed to be a possible predictor of positive change in verbal behavior. However, since no such significant relationships were recorded, it was impossible to conclude that the MTAI could be used to predict success in the use of GSA techniques.

Other Data. Data gathered from a number of sources were used in the study. These sources were as follows: Personal Data Questionnaire, General Questionnaire, GSA Questionnaire, log books, worksheets, taped interviews.

The data gathered from these varied sources have been used throughout the study to assist the researcher in a number of ways: (1) to provide information on the personal background of the participants; (2) to examine their attitudes towards the cooperating school, the cooperating teacher, the Faculty of Education, the faculty consultant, the PD/AD program, the GSA project and a number of other related aspects.

In the General Questionnaire respondents indicated their dissatisfaction with the PD/AD program in general, and with the theoretical, coursework components in particular. They sought a reorganization of the program to provide more time for student teaching, school observation, curriculum workshops, and training in teaching techniques by means of microteaching, GSA, and other simulation experiences. Students were driven to harsh criticism not so much by a 'theory' versus 'practice' dichotomy but by their fear that in a short, eight month course they would not be ready to take on the onerous task of teaching children. Several of them recommended extending the program for several months to make it possible to satisfy the need for providing a theoretical foundation and for expanding those program components more directly related to the act of teaching.

The GSA Questionnaire provided specific feedback on the GSA program itself. Information was also collected on a wide range of topics, from general reactions to the total experience to the complexities of using video-taping equipment.

Student recommendations fell into three broad categories - GSA Schedules, pre-training, and technical equipment.

1. GSA Schedules should be simplified. They would appear less imposing if extra worksheets were deleted and kept elsewhere.

2. Pre-training should be mandatory and include practice coding in groups and more extensive experience handling the technical equipment.
3. The videotaping 'package' should be simplified by using the new portable cameras and videotape recorders. The audio portions of most tapes were sub-standard and more sensitive microphones should be incorporated into the program.

In general the participating students found the experience stimulating and expressed an interest in participating further in such projects.

CHAPTER VI

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The purpose of this chapter is fourfold: (1) to summarize the study, (2) to present certain conclusions based upon the findings, (3) to indicate the implications for *GSA* programs in particular, and for teacher training programs in general, and (4) to make recommendations for further research.

Summary of the Study

The purpose of the study was to determine whether a program of Guided Self-Analysis would effect significant changes in certain verbal behavior and attitude variables of a group of elementary student teachers; and if so, whether it would be possible to associate maximal beneficial change with initial scores on selected *MTAI* factors.

Twenty student teachers in the Professional Diploma/After Degree program for elementary teachers at the University of Alberta participated in the study which was carried out during the 1970-71 academic year.

Students were randomly assigned to two groups - twelve to the experimental group and eight to the control group. The experimental subjects used the *GSA* training Schedules A and B during the project. They were trained to use videotaping equipment so that they could make their own tapes for analysis with the *GSA* schedules.

The control subjects did not have access to the GSA schedules and were not trained in the use of videotaping equipment. They met regularly during the project with the director during which general pedagogical theories were discussed and specific problems examined.

Each group was assigned to a cooperating school over a three-month period. Twenty-three days were devoted to student teaching.

Prior to the start of the project, all participants completed two questionnaires: (1) the Personal Data Questionnaire, PDQ, (2) the Minnesota Teacher Attitude Inventory, MTAI. At the end of the treatment period, each participant completed the MTAI a second time, completed the General Questionnaire, handed in a personal Log Book, and taped a half-hour interview with the project director. Experimental subjects completed the GSA Questionnaire as well.

A factor analysis of the MTAI was completed in order to determine whether it was uni-dimensional or, as the research suggested, multi-dimensional.

Three hypotheses were designed to measure:

1. significant changes in the verbal behaviors of the experimental group as compared with the control group;
2. significant changes in the attitudes of the experimental group as compared with the control group;
3. the extent to which initial attitude scores relate to verbal behavior changes, and can therefore be used as predictors of success in GSA training.

The data gathered from other sources, such as questionnaires, log books, and interviews were outlined and discussed in the previous chapter. These data served to provide the context for such a project in that they shed light on the participants and the environments in which they studied and completed the project - the Faculty of Education and the cooperating schools. The GSA Questionnaire and the worksheets and to some extent, the log books and interviews, contributed more directly to the GSA program in all its ramifications. The General Questionnaire was designed to provide information on the environments for the project, namely the university and the cooperating schools. The log books and interviews added a further dimension to this aspect of the study.

Conclusions

The following conclusions must be examined within the limitations of the present study. They may only be generalized to the extent that conditions and procedures are replicable.

1. Students trained to use GSA schedule A are able to decrease their use of Information questions and increase their use of Leading and of Probing questions significantly. Their Question Index scores also increased significantly.
2. Students trained to use GSA schedule B are able to decrease their use of Closure Responses significantly. The Response Index also improves significantly.
3. Students trained to use GSA schedules A and B are able to increase significantly their General Index of

Interaction, a measure combining Question and Response behavior.

4. Students not trained to use the *GSA* schedules are not able to modify their verbal behaviors in the same direction as those trained in *GSA*. Moreover, they may tend to *increase* their use of Information questions and *decrease* their use of Extending responses.
5. Training in the use of *GSA* schedules appears to have little significant effect on the attitudes, as measured by the *MTAI* of student teachers.
6. Scores on the *MTAI*, both total and dimensional, tend to increase over the treatment period for those trained in *GSA*, while the scores for those not so trained tend to decrease.
7. There does not appear to be any significant, positive relationship between scores on an attitude inventory (*MTAI*) and future success in the modification of specific verbal behaviors by student teachers.

Implications

The findings of this study suggest a number of implications for the education of student teachers and for the development and modification of *GSA* techniques.

1. *GSA* training should continue to be tested in order to establish its validity in the training of student teachers.

2. The GSA program requires more extensive pre-training in the use of the schedules, than was done in this study.
3. GSA schedules must be modified and simplified in order to avoid intimidating the user by their sheer bulk and complexity.
4. Teacher education programs should be modified in such a way as to permit the inclusion of complete training components, such as GSA and Microteaching, when they have been validated through research.
5. The study yielded no evidence to support the contention that the MTAI is a worthwhile instrument for predicting those students who would benefit most from a GSA program. Further investigation using the MTAI as a predictor should be undertaken in the future.
6. The desirability of having a predictor instrument that could be used to determine which students would benefit from GSA training, suggests that instruments other than the MTAI be examined. The Teacher Situation Reaction Test and the Dogmatism Scale have both been used in connection with studies of teachers' verbal behaviors, but not as possible predictive instruments.

Recommendations for Future Research

1. A study similar in design to the present one is suggested, in which the amount of time devoted to prior training in the use of GSA schedules is increased

considerably, the length of the treatment period is extended and in which experimental and control subjects are in the same schools.

2. A study similar in design to the present one, with the modifications mentioned in (1) is suggested in which the experimental and control group would be selected from a population of in-service teachers (a) with fewer than five years of teaching experience and (b) with more than ten years of teaching experience.
3. A study similar to the present one, with the modifications mentioned in (1) is suggested. The Dogmatism Scale would be used in addition to the MTAI so that the "open" and "closed" mind syndrome could be linked to the ability to modify verbal behaviors.
4. A study similar in design to the present one, with the modifications mentioned in (1) is suggested in which a second experimental group would be randomly selected and be assisted in their GSA activities by the cooperating teacher or by the faculty consultant.
5. A study similar in design to the present one, with the modifications mentioned in (1) is suggested where subjects, both experimental and control, would teach the same lessons to similar groups so that student achievement could be related to changes in verbal behavior due to GSA training.
6. A series of factor analytic studies of the MTAI should be

completed with larger populations from (a) elementary education students, (b) secondary education students, (c) in-service teachers with fewer than five years of teaching experience, and (d) in-service teachers with more than ten years of teaching experience.

Concluding Remarks

> Despite a half century of research and the development of several sophisticated theories, the teacher's classroom activities have been relatively unaffected by what the learning theorist has to say (Jackson, 1969, p. 159).

The present study has been carried out in what Jackson called "the more or less chaotic conditions under which learning normally takes place (1969, p. 159)." To have controlled the conditions more stringently might have resulted in a more impressive list of significant changes. However, techniques designed to assist the teacher in altering his verbal behavior should be validated under everyday conditions or they may be of limited usefulness to him. Classroom research, then, must sacrifice to a considerable extent the controlled environment of the laboratory, so that the researcher can observe the phenomena under natural conditions. This type of research, beset as it is with difficulties in controlling extraneous experiences, may yet prove to be the most productive and practical means of testing the validity of new teaching methods and techniques.

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APPENDIX A

GSA CRITERION VARIABLES

Schedule A - Questioning Strategies

Rhetorical:	Questions which teachers do not intend or allow pupils to answer.
Information:	Questions which ask pupils to identify and describe: (a) Objects, qualities, actions and relationships previously observed, read or discussed (information recall). (b) Objects, qualities, actions and relations observed in immediate experience.
Leading:	Questions which guide or "clue" pupils to the desired answer, or to appropriate means for determining the answer.
Probing:	Questions which ask pupils to: (a) Generate concepts, principles, or rules which explain relationships among units of information. (b) Apply known concepts, principles, or rules to the analysis of new information.
Other:	Questions not directly related to development of the ideas under consideration.

Schedule B - Response Patterns

Closure:	A response which has the effect of cutting off a pupil's current line of thinking.
Verbal Reward:	A response which indicates to the pupil that his answer has merit and contributes to the progress of the lesson.
Sustaining:	A response which maintains the level of pupil thinking.
Extending:	A response which raises the level (complexity) of pupil thinking.

APPENDIX B

PREVIOUSLY COPYRIGHTED MATERIAL IN
APPENDIX B NOT MICROFILMED.

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PERSONAL DATA QUESTIONNAIRE

Name: ______________________ Age: ________

Address: ______________________ Sex: ________

Ident. No.: ______________________ Marital Status: ________

Degree already held: ______________________

Major Subject: (3 or more courses) ______________________

Faculty: ______________________

Name of granting institution: ______________________

No. of years of university education: ______________________
(count present year as one full year)

Teaching Experience: (full or part-time/specify length and type)

____

____

____

Other Work Experience: (exclude summer employment/specify length and type)

____

____

____

Are you prepared to participate in a 'student teaching' project to be carried out during the Second Term? YES ( ); NO ( ).

If you answered 'NO' to the previous question, would you please indicate reasons for your decision?

____

____

GENERAL QUESTIONNAIRE

NAME ______________________________

A number of statements related to your recent in-school activities during January, February and March, are included. You may Strongly Agree, Agree, Disagree, or Strongly Disagree with any item by placing a check mark in the appropriate space. In addition, some space has been left for you to qualify or elaborate any of your responses.

	SA	A	D	SD
1. Two half-days per week were inadequate for the purposes of this project. ________________________________	____	____	____	____
2. These activities better prepared me to assume full control of the class in March. ________________________________	____	____	____	____
3. There was a good working relationship between the student teachers and the school staff. ________________________________	____	____	____	____
4. Student teaching experiences were well organized by the school staff. ________________________________	____	____	____	____
5. The cooperating teacher over-supervised the student teacher. ________________________________	____	____	____	____
6. Student teachers were given too many responsibilities by the cooperating teacher. ________________________________	____	____	____	____
7. The cooperating teacher was an excellent model for the student teacher. ________________________________	____	____	____	____
8. The cooperating teacher assisted the student teacher with concrete suggestions. ________________________________	____	____	____	____

9. The cooperating teacher's evaluation was both fair and accurate. ____ ____ ____ ____

____

10. Discipline in the cooperating school was a problem. ____ ____ ____ ____

____

11. The cooperating teacher should participate in the evaluation of the student teacher. ____ ____ ____ ____

____

12. The faculty consultant assisted the student teacher with concrete suggestions. ____ ____ ____ ____

____

13. The faculty consultant did not observe the student teacher often enough. ____ ____ ____ ____

____

14. The faculty consultant had a clear understanding of the school environment and problems. ____ ____ ____ ____

____

15. The faculty consultant should participate in the evaluation of student teachers. ____ ____ ____ ____

____

16. The PD/AD Program should be extended to 12 or 14 months. ____ ____ ____ ____

____

17. The PD/AD Program successfully bridges the gap between 'theory' and 'practice'. ____ ____ ____ ____

____

18. The present Program is too demanding of students' time and effort. ____ ____ ____ ____

____

____

PART B

A. List the three most valuable activities in the PD/AD Program.

____

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B. List the three least valuable activities in the PD/AD Program.

____

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C. Make three specific recommendations for change in the PD/AD Program.

____

____

____

____

GUIDED SELF ANALYSIS QUESTIONNAIRE

NAME ______________________________

Please answer these questions on the sheets supplied, using both sides if necessary. Number each response carefully.

1. Did GSA help you to analyse your verbal behavior? How?
2. Did you at any time feel threatened by GSA?
3. What are some of the weaknesses that GSA indicated to you on your first videotape?
4. Did GSA help you to eradicate any other bad habits not related to verbal behavior?
5. Did GSA make you more sensitive to the needs of children?
6. Do the GSA schedules help you to code adequately or is more training necessary?
7. Could the coding TASKS be improved in any ways?
8. Did you have difficulty coding your own tapes?
9. Should there have been a specific training program for coding in addition to the schedules?
10. Did you find coding boring or interesting?
11. Was it difficult to compute the various percentages and develop the various profiles?
12. Did the illustrative material in the later TASKS help you to interpret your own verbal behavior patterns?
13. Did you have any difficulty completing the FINAL TASK in each schedule?
14. Were you discouraged or annoyed with yourself when planned changes did not come off as expected?
15. What are your views on the technical aspects of GSA? e.g., camera, mike, recorder, tapes, etc.
16. Could GSA be improved in any way?

17. Did you feel that you needed more time to use GSA effectively?

18. Should GSA involve more training at the University prior to using it in the schools?

19. Did your cooperating teacher show any interest in GSA?

20. What are your views on a GSA program involving the student and the cooperating teacher?

21. Would you involve yourself in another GSA program next year, if one were available?

22. Did you get the kind of assistance to complete the project that you needed?

23. Do you think you need to know more about how to teach before any kind of student teaching activity?

24. Is GSA the same as Microteaching? Explain.

25. What was the greatest 'annoyance' during the entire project?

APPENDIX C

TABLE XXVIII

FACTOR I. (Campbell)

MORAL STATUS

Item Number	MTAI Statement
18	A teacher should never discuss sex problems with the pupils.
47	The child must learn that "teacher knows best".
58	Children "should be seen and not heard".
65	Children are too carefree.
70	Dishonesty as found in cheating is probably one of the most serious of moral offenses.
72	Pupils must learn to respect teachers if for no other reason than that they are teachers.
75	No child should rebel against authority.
87	Pupils should not respect teachers any more than any other adults.
95	Children should not expect talking privileges when adults wish to speak.
99	Children have no business asking questions about sex.
125	It is sometimes necessary to break promises made to children.
137	There is too much intermingling of the sexes in extra-curricular activities.
140	Teachers probably over-emphasize the seriousness of such pupil behavior as the writing of obscene notes.
145	Young people today are just as good as those of the past generation.

TABLE XXIX

FACTOR II. (Campbell)

DISCIPLINE

Item Number	MTAI Statement
3	Minor disciplinary situations should sometimes be turned into jokes.
7	If the teacher laughs with the pupils in amusing classroom situations, the class tends to get out of control.
13	The first lesson a child needs to learn is to obey the teacher without hesitation.
15	There is too great an emphasis upon "keeping order" in the classroom.
39	To maintain good discipline in the classroom a teacher needs to be "hard boiled".
46	More "old-fashioned whippings" are needed today.
51	Discipline problems are the teacher's greatest worry.
60	It is easier to correct discipline problems than it is to prevent them.
77	Difficult disciplinary problems are seldom the fault of the teacher.
102	Whispering should not be tolerated.
104	Teachers should consider problems of conduct more seriously than they do.
110	As a rule teachers are more lenient with their pupils.
118	A pupil found writing obscene notes should be severely punished.
133	Children should be given reasons for the restrictions placed upon them.
136	A pupil should always be aware of what is expected of him.
144	Teachers can be in the wrong as well as pupils.
146	Keeping discipline is not the problem that many teachers claim it to be.
148	Most pupil misbehavior is done to annoy the teacher.

TABLE XXX

FACTOR III. (Campbell)

PRINCIPLES OF CHILD DEVELOPMENT AND BEHAVIOR

Item Number	MTAI Statement
24	Too many children nowadays are allowed to have their own way.
28	The boastful child is usually overconfident of his ability.
37	Standards of work should vary with the pupil.
40	Success is more motivating than failure.
41	Imaginative tales demand the same punishment as lying.
43	A good motivating device is the critical comparison of a pupil's work with that of other pupils.
52	The low achiever probably is not working hard enough and applying himself.
76	There is too much leniency today in the handling of children.
81	All children should start to read by the age of seven.
89	Teachers who are liked best probably have a better understanding of their pupils.
97	Teachers are responsible for knowing the home conditions of every one of their pupils.
103	Shy pupils especially should be required to stand when reciting.
122	It is difficult to understand why some children want to come to school so early in the morning before opening time.
127	One should be able to get along with almost any child.
128	Children are not mature enough to make their own decisions.
129	A child who bites his nails needs to be shamed.
131	There is no excuse for the extreme sensitivity of some children.
143	Aggressive children require the most attention.

TABLE XXXI

FACTOR IV. (Campbell)

PRINCIPLES OF EDUCATION

Item Number	MTAI Statement
12	Pupils should be required to do more studying at home.
16	A pupil's failure is seldom the fault of the teacher.
19	Pupils have it too easy in the modern school.
21	Pupils expect too much help from the teacher in getting their lessons.
23	Most pupils do not make an adequate effort to prepare their lessons.
26	The teacher is usually to blame when pupils fail to follow instructions.
42	Every pupil in the sixth grade should have sixth grade reading ability.
48	Increased freedom in the classroom creates confusion.
53	There is too much emphasis on grading.
59	A teacher should always have at least a few failures.
63	Too much nonsense goes on in many classrooms these days.
71	Children should be allowed more freedom in their execution of learning activities.
82	Universal promotion of pupils lowers achievement standards.
91	Most teachers do not give sufficient explanation in their teaching.
92	There are too many activities lacking in academic respectability that are being introduced into the curriculum of the modern school.
93	Children should be given more freedom in the classroom than they usually get.
105	A teacher should never leave the class to its own management.
108	"Lack of application" is probably one of the most frequent causes for failure.
121	It isn't practicable to base school work on children's interests.
123	Children that cannot meet the school standards should be dropped.
135	It is usually the uninteresting and difficult subjects that will do the pupil the most good.
149	One should not expect pupils to enjoy school.

TABLE XXXII

FACTOR V. (Campbell)

PERSONAL REACTIONS

Item Number	*MTAI* Statement
1	Most children are obedient.
5	Teaching never gets monotonous.
6	Most pupils don't appreciate what a teacher does for them.
25	Children's wants are just as important as those of an adult.
31	Some children ask too many questions.
54	Most children lack common courtesy towards adults.
67	Pupils who are foreigners usually make the teacher's task more unpleasant.
94	Most pupils are unnecessarily thoughtless relative to the teacher's wishes.
98	Pupils can be very boring at times.
101	Most pupils are considerate of their teachers.
106	A teacher should not be expected to do more work than he is paid for.
107	There is nothing that can be more irritating than some pupils.
111	Slow pupils certainly try one's patience.
117	Children are so likeable that their shortcomings can usually be overlooked.
119	A teacher seldom finds children really enjoyable.
132	Children just cannot be trusted.
141	Teachers should not expect pupils to like them.

TABLE XXXIII

FACTOR 1. (Horn and Morrison)

TRADITIONALISTIC VERSUS MODERN BELIEFS ABOUT CHILD CONTROL

Factor Loading	Item Number	_MTAI_ Statement
.706	110	As a rule teachers are too lenient with their pupils.
.705	116	Most pupils have too easy a time of it and do not learn to do real work.
.703	19	Pupils have it too easy in the modern school.
.688	126	Children today are given too much freedom.
.668	76	There is too much leniency today in the handling of children.
.664	35	Discipline in the modern school is not as strict as it should be.
.653	80	Children nowadays are allowed too much freedom in school.
.608	24	Too many children nowadays are allowed to have their own way.
.606	23	Most pupils do not make an adequate effort to prepare their lessons.
.579	92	There are too many activities lacking in academic respectability that are being introduced into the curriculum of the modern school.
.566	104	Teachers should consider problems of conduct more seriously than they do.
.565	50	Teachers should exercise more authority over their pupils than they do.
.561	57	Many teachers are not severe enough in their dealings with pupils.
.559	63	Too much nonsense goes on in many classrooms these days.
.497	12	Pupils should be required to do more studying at home.
.460	21	Pupils expect too much help from the teacher in getting their lessons.
.420	65	Children are too carefree.

TABLE XXXIV

FACTOR II. (Horn and Morrison)

UNFAVORABLE VERSUS FAVORABLE OPINIONS ABOUT CHILDREN

Factor Loading	Item Number	MTAI Statement
.616	77	Difficult disciplinary problems are seldom the fault of the teacher.
.616	83	Children are unable to reason adequately.
.576	134	Most pupils are not interested in learning.
.566	94	Most pupils are unnecessarily thoughtless relative to the teacher's wishes.
.564	121	It isn't practicable to base school work upon children's interests.
.564	132	Children just cannot be trusted.
.559	124	Children are usually too inquisitive.
.534	113	Pupils like to annoy the teacher.
.532	128	Children are not mature enough to make their own decisions.
.504	114	Children usually will not think for themselves.
.497	30	A teacher cannot place much faith in the statements of pupils.
.479	106	A teacher should not be expected to do more work than he is paid for.
.464	22	A teacher should not be expected to sacrifice an evening of recreation in order to visit a child's home.
.460	119	A teacher seldom finds children really enjoyable.
.450	6	Most pupils do not appreciate what a teacher does for them.
.432	74	Pupils usually are not qualified to select their own topics for themes and reports.
.422	96	Pupils are usually slow to "catch on" to new materials.
.413	130	Children will think for themselves if permitted (negative).
.402	25	Children's wants are just as important as those of an adult (negative).

TABLE XXXIV (continued)

Factor Loading	Item Number	MTAI Statement
.365	37	Standards of work should vary with the pupil (negative).
.357	9	Children have a natural tendency to be unruly.
.354	38	The majority of children take their responsibilities seriously (negative).
.344	127	One should be able to get along with almost any child (negative).

TABLE XXXV

FACTOR III. (Horn and Morrison)

PUNITIVE INTOLERANCE VERSUS PERMISSIVE TOLERANCE FOR CHILD MISBEHAVIOR

Factor Loading	Item Number	*MTAI* Statement
.660	85	The child who misbehaves should be made to feel guilty and ashamed of himself.
.613	47	The child must learn that "teacher knows best."
.603	13	The first lesson a child needs to learn is to obey the teacher without hesitation.
.584	10	It sometimes does a child good to be criticized in the presence of other pupils.
.566	69	Assigning additional school work is often an effective means of punishment.
.560	72	Pupils must learn to respect teachers if for no other reason than that they are teachers.
.523	103	Shy pupils especially should be required to stand when reciting.
.481	43	A good motivating device is the critical comparison of a pupil's work with that of other pupils.
.469	115	Classroom rules and regulations must be considered inviolable.
.457	129	A child who bites his nails needs to be shamed.
.444	75	No child should rebel against authority.
.436	86	If a child wants to speak or to leave his seat during the class period, he should always get permission from the teacher.
.435	88	Throwing of chalk and erasers should always demand severe punishment.
.425	28	The boastful child is usually overconfident of his ability.
.420	11	Unquestioning obedience in a child is not desirable (negative).
.419	70	Dishonesty as found in cheating is probably one of the most serious of moral offenses.
.412	44	It is better for a child to be bashful than to be "boy or girl crazy."

TABLE XXXV (continued)

Factor Loading	Item Number	MTAI Statement
.407	41	Imaginative tales demand the same punishment as lying.
.402	2	Pupils who "act smart" probably have too high an opinion of themselves.
.397	32	A pupil should be required to stand when reciting.
.263	56	At times it is necessary that the whole class suffer when the teacher is unable to identify the culprit.

TABLE XXXVI

FACTOR IV. (Horn and Morrison)

ALOOF VERSUS INVOLVED (SENSITIVE, EMPATHIC) ATTITUDE TOWARD CHILDREN

Factor Loading	Item Number	MTAI Statement
.712	111	Slow pupils certainly try one's patience.
.650	122	It is difficult to understand why come children want to come to school so early in the morning before opening time.
.620	139	The teacher should disregard the complaints of the child who constantly talks about imaginary illnesses.
.547	67	Pupils who are foreigners usually make the teacher's task more unpleasant.
.422	31	Some children ask too many questions.
.392	7	If the teacher laughs with the pupils in amusing classroom situations, the class tends to get out of control.
.304	14	Young people are difficult to understand these days.

TABLE XXXVII

FACTOR V. (Horn and Morrison)

LAISSEZ-FAIRE VERSUS CONTROLLING ATTITUDE TOWARD CHILDREN

Factor Loading	Item Number	MTAI Statement
.665	15	There is too great an emphasis upon "keeping order" in the classroom.
.648	93	Children should be given more freedom in the classroom than they usually get.
.580	140	Teachers probably overemphasize the seriousness of such pupil behavior as the writing of obscene notes.
.541	64	The school is often to blame in cases of truancy.

TABLE XXXVIII

FACTOR 1. (Yee and Fruchter)

CHILDREN'S IRRESPONSIBLE TENDENCIES AND LACK OF SELF-DISCIPLINE

Factor Loading	Item Number	MTAI Statement
.65	126	Children today are given too much freedom.
.61	35	Discipline in the modern school is not as strict as it should be.
.60	80	Children nowadays are allowed too much freedom in school.
.59	19	Pupils have it too easy in the modern school.
.57	76	There is too much leniency today in the handling of children.
.55	21	Pupils expect too much help from the teacher in getting their lessons.
.54	116	Most pupils have too easy a time of it and do not learn to do real work.
.53	109	Young people nowadays are too frivolous.
.51	65	Children are too carefree.
.50	36	Most pupils lack productive imagination.
.49	110	As a rule teachers are too lenient with their pupils.
.47	114	Children usually will not think for themselves.
.46	23	Most pupils do not make an adequate effort to prepare their lessons.
.46	24	Too many children nowadays are allowed to have their own way.
.46	63	Too much nonsense goes on in many classrooms these days.
.45	128	Children are not mature enough to make their own decisions.
.44	52	The low achiever probably is not working hard enough and applying himself.
.44	54	Most children lack common courtesy toward adults.
.44	75	No child should rebel against authority.
.44	92	There are too many activities lacking in academic respectability that are being introduced into the curriculum of the modern school.

TABLE XXXIX

FACTOR II. (Yee and Fruchter)

CONFLICT BETWEEN TEACHERS' AND PUPILS' INTERESTS

Factor Loading	Item Number	MTAI Statement
.55	149	One should not expect pupils to enjoy school.
.51	131	There is no excuse for the extreme sensitivity of some children.
.51	144	Teachers can be in the wrong as well as pupils.
.50	141	Teachers should not expect pupils to like them.
.49	121	It isn't practicable to base school work upon children's interests.
.49	132	Children just cannot be trusted.
.48	99	Children have no business asking questions about sex.
.48	137	There is too much intermingling of the sexes in extra-curricular activities.
.47	134	Most pupils are not interested in learning.
.47	136	A pupil should always be fully aware of what is expected of him.
.46	119	A teacher seldom finds children really enjoyable.
.44	124	Children are usually too inquisitive.
.44	133	Children should be given reasons for the restrictions placed upon them.
.43	20	A teacher should not be expected to burden himself with a pupil's problems.
.42	34	A teacher should never acknowledge his ignorance of a topic in the presence of his pupils.

TABLE XL

FACTOR III. (Yee and Fruchter)

RIGIDITY AND SEVERITY IN HANDLING PUPILS

Factor Loading	Item Number	MTAI Statement
.56	13	The first lesson a child needs to learn is to obey the teacher without hesitation.
.52	27	A child should be taught to obey an adult without question.
.51	88	Throwing of chalk and erasers should always demand severe punishment.
.51	115	Classroom rules and regulations must be considered inviolable.
.49	86	If a child wants to speak or to leave his seat during the class period, he should always get permission from the teacher.
.49	118	A pupil found writing obscene notes should be severely punished.
.46	72	Pupils must learn to respect teachers if for no other reason than that they are teachers.
.45	85	The child who misbehaves should be made to feel guilty and ashamed of himself.
.44	47	The child must learn that "teacher knows best."
.44	103	Shy pupils especially should be required to stand when reciting.
.42	81	All children should start to read by the age of seven.
.42	129	A child who bites his nails needs to be ashamed.

TABLE XLI

FACTOR IV. (Yee and Fruchter)

PUPILS' INDEPENDENCE IN LEARNING

Factor Loading	Item Number	MTAI Statement
.54	93	Children should be given more freedom in the classroom than they usually get.
.47	64	The school is often to blame in cases of truancy.
.47	71	Children should be allowed more freedom in their execution of learning activities.
.46	77	Difficult disciplinary problems are seldom the fault of the teacher.
.45	16	A pupil's failure is seldom the fault of the teacher.
.44	53	There is too much emphasis on grading.
.42	15	There is too great an emphasis upon "keeping order" in the classroom.

TABLE XLII

FACTOR V. (Yee and Fruchter)

PUPILS' ACQUIESCENCE TO THE TEACHER

Factor Loading	Item Number	MTAI Statement
.56	101	Most pupils are considerate of their teachers.
.52	107	There is nothing that can be more irritating than some pupils.
.49	90	Most pupils try to make things easier for the teacher.
.44	1	Most children are obedient.
.44	113	Pupils like to annoy the teacher.
.42	146	Keeping discipline is not the problem that many teachers claim it to be.

TABLE XLIII

PRE- AND POST- TEST RAW SCORES FOR EXPERIMENTAL SUBJECTS ON FOUR ATTITUDE VARIABLES

Subjects	TOTAL MTAI		Bailey Factor 1		Bailey Factor 2		Bailey Factor 3	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
0 0 1	75	55	32	24	15	16	08	06
0 0 2	53	77	24	19	06	15	11	09
0 0 3	21	87	22	32	04	09	09	11
0 0 4	63	66	28	29	02	02	11	11
0 0 5	64	88	24	26	13	17	11	12
0 0 6	61	61	29	25	04	08	09	11
0 0 7	57	59	18	18	08	05	08	09
0 0 8	87	80	25	23	13	11	11	10
0 0 9	62	75	24	21	14	12	07	11
0 1 0	54	54	21	16	18	13	07	07
0 1 1	96	92	24	24	19	19	08	12
0 1 2	70	81	25	27	21	17	07	09

TABLE XLIV

PRE- AND POST- TEST RAW SCORES FOR EXPERIMENTAL SUBJECTS ON FIVE VERBAL BEHAVIOR VERIABLES RELATED TO QUESTIONING STRATEGIES

Subjects	Rhetorical		Information		Leading		Probing		Question Index	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
0 0 1	.00	.00	.41	.43	.59	.38	.00	.19	0.590	0.704
0 0 2	.01	.04	.65	.63	.15	.21	.19	.12	0.425	0.381
0 0 3	.04	.00	.74	.70	.08	.23	.14	.07	0.268	0.323
0 0 4	.04	.08	.94	.44	.02	.23	.00	.25	0.021	0.717
0 0 5	.11	.12	.81	.32	.08	.29	.00	.27	0.090	0.918
0 0 6	.06	.10	.73	.36	.11	.15	.10	.39	0.250	1.059
0 0 7	.08	.02	.67	.34	.16	.17	.09	.47	0.301	1.255
0 0 8	.17	.04	.72	.81	.09	.04	.02	.11	0.136	0.176
0 0 9	.04	.01	.62	.58	.04	.15	.26	.26	0.455	0.562
0 1 0	.09	.10	.76	.49	.13	.27	.02	.14	0.169	0.526
0 1 1	.07	.05	.57	.58	.27	.29	.09	.08	0.429	0.425
0 1 2	.07	.07	.81	.27	.12	.37	.00	.29	0.129	0.984

TABLE XLV

PRE- AND POST- TEST RAW SCORES FOR EXPERIMENTAL SUBJECTS ON FIVE VERBAL BEHAVIOR VARIABLES RELATED TO RESPONSE STRATEGIES AND ONE VERBAL BEHAVIOR VARIABLE COMBINING QUESTION AND RESPONSE COMPONENTS

Subjects	Closure		Sustaining		Extending		Response Index		Verbal Rewards		General Index	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
0 0 1	.70	.52	.30	.38	.00	.10	0.300	0.553	.05	.05	0.890	1.237
0 0 2	.74	.61	.24	.36	.02	.03	0.265	0.402	.14	.20	0.690	0.783
0 0 3	.96	.84	.04	.16	.00	.00	0.040	0.160	.12	.02	0.308	0.483
0 0 4	.79	.85	.21	.10	.00	.05	0.210	0.158	.02	.16	0.231	0.875
0 0 5	.80	.81	.20	.32	.00	.07	0.200	0.419	.34	.14	0.290	1.337
0 0 6	.82	.80	.18	.20	.00	.00	0.180	0.200	.22	.31	0.430	1.259
0 0 7	.82	.75	.18	.16	.00	.09	0.180	0.275	.05	.26	0.481	1.530
0 0 8	.88	.79	.12	.21	.00	.00	0.120	0.210	.43	.13	0.256	0.386
0 0 9	.71	.72	.25	.26	.04	.02	0.303	0.286	.36	.21	0.758	0.848
0 1 0	.50	.86	.46	.11	.04	.03	0.521	0.144	.08	.22	0.690	0.670
0 1 1	.71	.48	.29	.43	.00	.09	0.290	0.571	.17	.17	0.719	0.996
0 1 2	.78	.59	.22	.33	.00	.08	0.220	0.500	.28	.22	0.349	1.484